

2.0 TRAFFIC AND CRASH DATA

2.1 CRASH ANALYSIS

The ADOT Traffic Studies Section provided crash data for the section of I-10 between State Route 51 and the Santan Freeway. A total of 3,148 crashes were reported between December 2002 and December 2005, which included 9 fatalities. The following is a summary of some key characteristics of the crash data:

- Of the 3,148 crashes reported, 2,267 resulted in property damage only (72%), 872 resulted in injuries (27.7%), and 9 resulted in a fatality (0.3%).
- 76% (2,401) of the crashes involved another motor vehicle while 11% involved a fixed object. These two types of crashes accounted for 87% of the crashes.
- Of the 2,401 crashes with another motor vehicle, 68% (1,630 crashes) were rear-end crashes, and 29% (698 crashes) were sideswipe crashes.
- Of the 3,148 total accidents, 85% occurred during the weekday while the other 15% occurred on the weekend. During the weekday period, 19% of the crashes occurred during the A.M. peak period (7:00 – 9:00 A.M.) and 21% occurred during the P.M. peak period (4:00 – 6:00 P.M.).
- 74% of the crashes occurred during the daylight hours, 5% occurred at dusk or dawn, and the remaining 21% occurred during hours of darkness.

As shown in Table 14, the highest crash rate along the I-10 corridor is between Elliot Road and Warner Road, while the lowest crash rate is between I-17 and 24<sup>th</sup> Street. The highest number of crashes occurred between 24<sup>th</sup> Street and 32<sup>nd</sup> Street.

Table 14 – Freeway Crash Data Summary

Freeway Corridor	Freeway Segment	No. of Crashes (12/2002 – 12/2005)	Crash Rate (2002 – 2005) (Crash/Million Vehicle Miles)
I-10	I-10/SR51/SR202L TI to Washington Street	279	0.92
I-10	Washington Street to Sky Harbor Boulevard	141	0.78
I-10	Sky Harbor Boulevard to I-17	191	1.16
I-10	I-17 to 24 <sup>th</sup> Street	21	0.11
I-10	24 <sup>th</sup> Street to 32 <sup>nd</sup> Street	501	1.00
I-10	32 <sup>nd</sup> Street to 40 <sup>th</sup> Street	194	0.70
I-10	40 <sup>th</sup> Street to 48 <sup>th</sup> Street	202	0.94
I-10	48 <sup>th</sup> Street to Broadway Road	84	0.72
I-10	Broadway Road to US 60	334	0.94

Table 14 – Freeway Crash Data Summary (continued)

Freeway Corridor	Freeway Segment	No. of Crashes (12/2002 – 12/2005)	Crash Rate (2002 – 2005) (Crash/Million Vehicle Miles)
I-10	US 60 to Baseline Road	169	1.10
I-10	Baseline Road to Elliot Road	446	1.15
I-10	Elliot Road to Warner Road	227	1.39
I-10	Warner Road to Ray Road	155	1.08
I-10	Ray Road to Chandler Boulevard	158	1.04
I-10	Chandler Boulevard to I-10/SR202L TI	46	1.27
I-17	I-10 to 16 <sup>th</sup> Street	217	1.66
I-17	16 <sup>th</sup> Street to 7 <sup>th</sup> Street	112	0.96
SR 143	I-10 to University Drive	118	1.44
SR 143	University Drive to Sky Harbor Boulevard	62	0.79
US 60	I-10 to Priest Drive	63	0.78
US 60	Priest Drive to Mill Avenue	1,369	5.75

According to the *Regional Freeway Bottleneck Study* (Maricopa Association of Governments, 2006), the average crash rate on the Regional Freeway System was 0.78 crashes per million vehicle miles in 2000. This study also documented the 75<sup>th</sup> percentile as 1.41 crashes per million vehicle miles (cpmvm). All fifteen of the I-10 calculated segment rates are less than the 75<sup>th</sup> percentile. While one of the additional freeway segment rates is within 1% of the 75<sup>th</sup> percentile, twenty of the twenty-one segments are less than or slightly higher (within 2%) than the 75<sup>th</sup> percentile.

One segment on US 60 between Priest Drive and Mill Avenue experienced a higher crash rate of 5.75 cpmvm. This segment had 1,369 crashes on this 1.26 mile segment over the three years reporting period. The majority (73%) of the crashes reported were rear-end crashes.

The evaluation indicates that a substantial number of crashes within the I-10 corridor occur during the A.M. and P.M. weekday peak periods with a high percentage of rear-end crashes. These types of crashes are commonly associated with congested traffic conditions. Providing additional freeway capacity that would reduce the level of congestion and provide a more balanced level-of-service throughout the corridor may reduce these crash rates.

2.2 EXISTING TRAFFIC CONDITIONS

Average annual daily traffic (AADT) historical information was obtained for I-10, I-17, SR 143 and US 60 from the Arizona State Highway System Log. The AADT volumes on I-10 range from approximately 300,000 vehicles per day (vpd) between 32<sup>nd</sup> Street and Broadway Road, to approximately 170,000 vpd between Baseline Road and Elliot Road as shown in Table 15.

Table 15 – Historical Traffic Volumes

Freeway Corridor	Freeway Segment	Average Annual Daily Traffic (AADT)					
		2000	2001	2002	2003	2004	2005
I-10	Washington Street to Sky Harbor Boulevard	189,000	197,000	205,000	210,000	217,000	221,000
I-10	24 <sup>th</sup> Street to 32 <sup>nd</sup> Street	254,000	264,000	275,000	282,000	291,000	297,000
I-10	48 <sup>th</sup> Street to Broadway Road	252,000	262,000	272,000	280,000	288,000	294,000
I-10	Baseline Road to Elliot Road	150,000	153,000	159,000	163,000	169,000	172,000
I-17	16 <sup>th</sup> Street to 7 <sup>th</sup> Street	N/A	105,000	109,000	112,000	118,000	118,000
SR143	I-10 to University Drive	101,000	101,000	106,000	108,000	N/A	114,000
US 60	Priest Drive to Mill Avenue	171,000	160,000	166,000	168,000	173,000	177,000

In addition, traffic counts were conducted in 2006. Figure 6 shows the 2006 daily and peak hour traffic volumes for the I-10 Corridor within the study area.

The traffic factors listed in the ADOT Arizona State Highway System Log indicate the portion of Average Annual Daily Traffic (AADT) occurring within the peak hour is approximately 6%, the directional distribution is approximately 53% in the peak direction of travel, and approximately 9% of the daily traffic is classified as commercial vehicles (trucks). These factors are based on 365 days of data collected in 1998.

Phoenix Sky Harbor International Airport has conducted traffic studies for the internal street system at the airport. These studies have determined that approximately 20% of the traffic using the airport roadway system in the morning and evening peak hours is cut-through traffic bypassing the freeway and arterial street systems.

2.3 EVALUATION OF HIGH OCCUPANCY VEHICLE LANES

2.3.1 Methodology

The MAG *High Capacity Transit Plan* (2003) recommended Express Bus and Bus Rapid Transit (BRT) as the preferred transit technology that would use the existing and planned HOV lanes throughout the Regional Freeway System. The recommendations of this plan were included in the transit component of the RTP.

The MAG *Value Lanes Study* was adopted in March 2002. This study recommended the construction of HOV lanes for all freeways within the Maricopa County area, and included recommendations for HOV directional ramp connections between freeways at specific freeway-to-freeway traffic interchanges

Within this segment of the I-10 corridor, HOV directional ramps were recommended at the I-10/SR51/SR202L TI to provide a direct HOV connection between I-10 (to/from the south) and SR 51 (to/from the north), and between I-10 (to/from the west) and SR 202L (to/from the east). An

HOV directional ramp was also recommended at the I-10/US60 TI to provide a direct HOV connection between I-10 (to/from the west) to US 60 (to/from the east). ADOT has constructed each of these HOV ramps. Another HOV ramp is included in the RTP at the I-10/SR202L (Santan) TI to provide a direct HOV ramp connection between I-10 (to/from the north) and SR 202L (to/from the east).

The *Value Lanes Study* has also identified a potential future HOV ramp at the I-10/I-17 (Maricopa) TI to provide a direct HOV ramp connection between I-10 (to/from the east) and I-17 (to/from the west) that would connect to the planned HOV lanes on I-17. The evaluation of this ramp is included with this study.

An evaluation of the future traffic demand for the HOV lanes was conducted to determine the number of lanes that would be required to satisfy the future transit demand. The MAG *Value Lanes Study* developed volume thresholds to define the capacity of an HOV lane during the peak hour with either single or multiple lane situations. The maximum capacity of a single HOV lane is defined as 1,500 vph. The capacity threshold is increased to 1,700 vph per lane for multiple HOV lanes.

2.3.2 Description of Alternatives

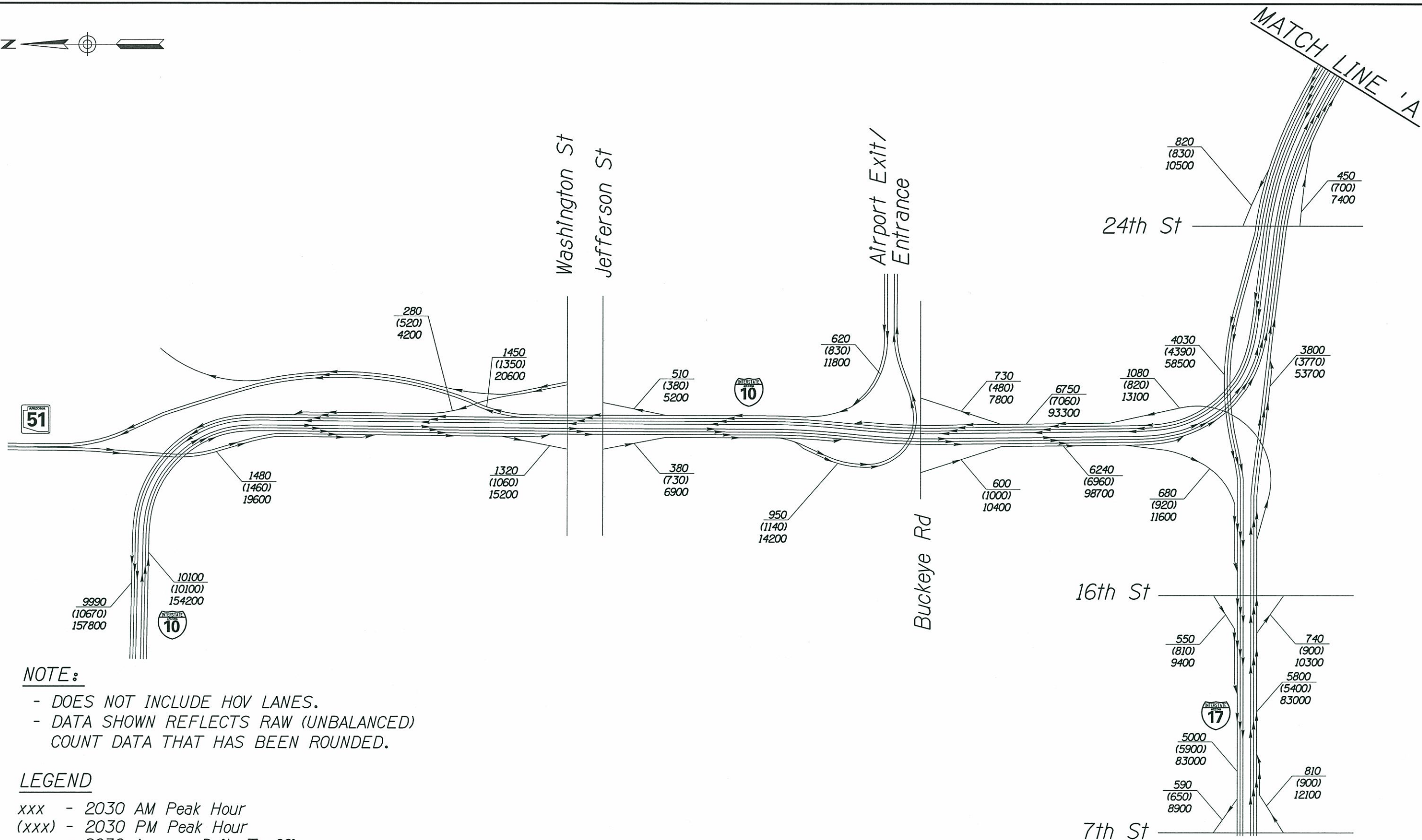
Year 2025 traffic volume projections were originally received for the three High Occupancy Vehicle (HOV) lane alternatives shown in Figure 7 on page 60.

The HOV lane Scenario A would include one HOV lane in each direction of travel on I-10 throughout the study limits. One HOV lane would also be provided in each direction of travel on I-17, US 60, and the Santan Freeway. An HOV directional ramp is provided between I-10 and SR 51 at the I-10/SR51/202L TI (existing), I-10 and I-17 at the I-10/I-17 (Maricopa) TI (planned future), I-10 and US 60 at the I-10/US60 TI (existing), and I-10 and SR 202L at the I-10/SR202L (Santan) TI (funded in RTP).

The HOV Lane Scenario B would include two HOV lanes in each direction of travel on I-10 between SR 51 and the Santan Freeway. One HOV lane would be provided in each direction of travel on I-17, US 60, and the Santan Freeway. HOV directional ramps would be provided at the system interchanges as described with Scenario A.

The HOV Lane Scenario C would include one HOV lane in each direction of travel on I-10 between SR 51 and I-17, two HOV lanes in each direction of travel on I-10 between I-17 and US 60, and one HOV lane in each direction of travel on I-10 between US 60 and the Santan Freeway. One HOV lane would be provided in each direction of travel on I-17, US 60, and the Santan Freeway. HOV directional ramps would be provided at the system interchanges as described with Scenario A.

[Text resumes on page 61]



## I-10 CORRIDOR IMPROVEMENT STUDY

DMJM HARRIS | AECOM

NOT TO SCALE - SCHEMATIC ONLY

**FIGURE 6**  
**EXISTING**  
**2006 TRAFFIC VOLUMES**  
**SHEET 1 OF 5**

4/10/2007 n:\5445\Design\tra\2030 ASR GRAPHICS\Existing\Rev\EX.vol12\_Rev.dgn

MATCH LINE 'A'

11000  
(12300)  
161700  
  
10090  
(10400)  
151600



32nd St

900  
(1510)  
15600

1000  
(610)  
8800

1860  
(1130)  
18700

550  
(990)  
8200

40th St

1160  
(1530)  
16400

880  
(680)  
9100

10500  
(9840)  
139900

MATCH LINE 'B'

1190  
(780)  
11900

330  
(770)  
5500

260  
(560)  
3800

7700  
(9270)  
131000

Broadway Rd



**NOTE:**

- DOES NOT INCLUDE HOV LANES.
- DATA SHOWN REFLECTS RAW (UNBALANCED) COUNT DATA THAT HAS BEEN ROUNDED.

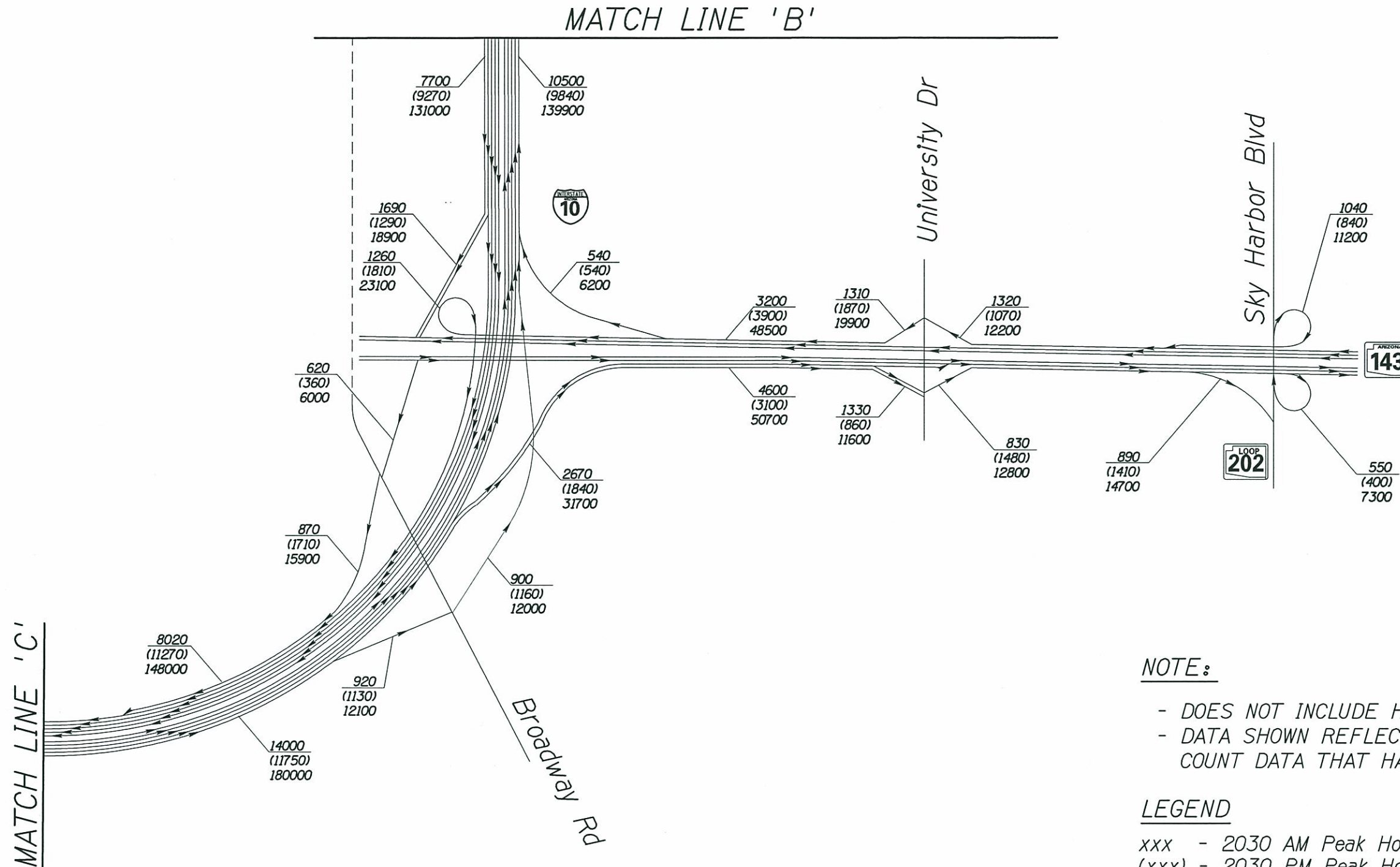
**LEGEND**

xxx - 2030 AM Peak Hour  
(xxx) - 2030 PM Peak Hour  
xxxx - 2030 Average Daily Traffic

**I-10 CORRIDOR IMPROVEMENT STUDY**  
**DMJM HARRIS | AECOM**

NOT TO SCALE - SCHEMATIC ONLY

**FIGURE 6**  
**EXISTING**  
**2006 TRAFFIC VOLUMES**  
**SHEET 2 OF 5**



**NOTE:**

- DOES NOT INCLUDE HOV LANES.
- DATA SHOWN REFLECTS RAW (UNBALANCED) COUNT DATA THAT HAS BEEN ROUNDED.

**LEGEND**

xxx - 2030 AM Peak Hour  
(xxx) - 2030 PM Peak Hour  
xxxx - 2030 Average Daily Traffic

**I-10 CORRIDOR IMPROVEMENT STUDY**

**DMJM HARRIS | AECOM**

NOT TO SCALE - SCHEMATIC ONLY

**FIGURE 6  
EXISTING  
2006 TRAFFIC VOLUMES  
SHEET 3 OF 5**

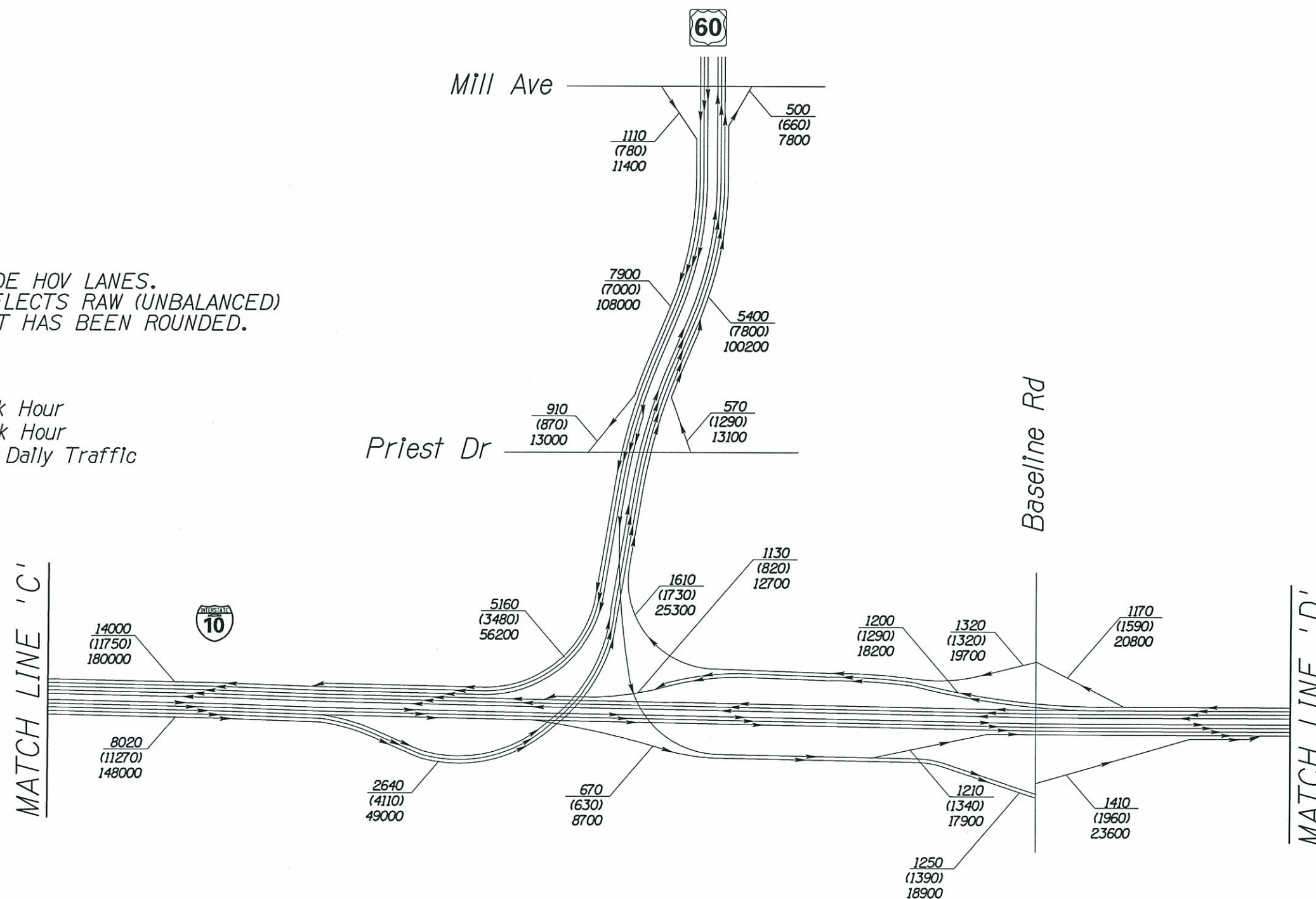


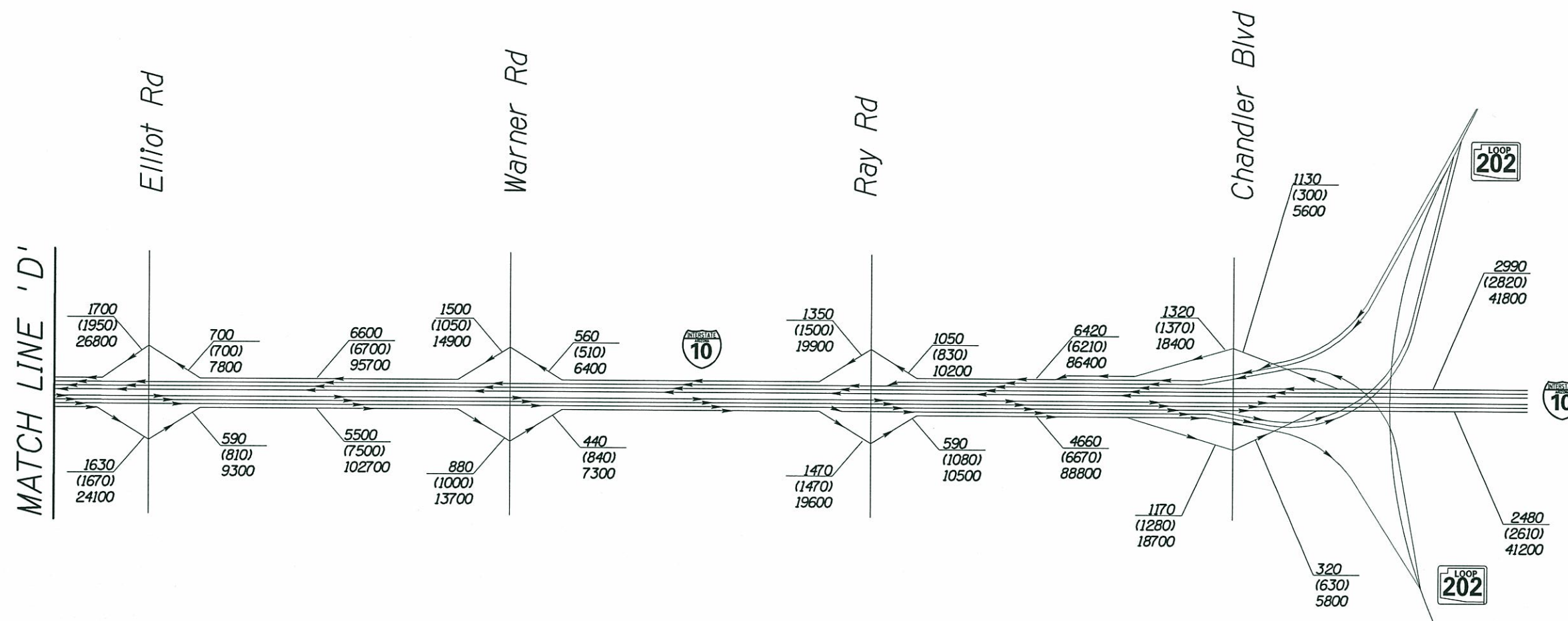
**NOTE:**

- DOES NOT INCLUDE HOV LANES.
- DATA SHOWN REFLECTS RAW (UNBALANCED) COUNT DATA THAT HAS BEEN ROUNDED.

**LEGEND**

- xxx - 2030 AM Peak Hour  
(xxx) - 2030 PM Peak Hour  
xxxx - 2030 Average Daily Traffic





**NOTE:**

- DOES NOT INCLUDE HOV LANES.
- DATA SHOWN REFLECTS RAW (UNBALANCED) COUNT DATA THAT HAS BEEN ROUNDED.

**LEGEND**

xxx - 2030 AM Peak Hour  
(xxx) - 2030 PM Peak Hour  
xxxx - 2030 Average Daily Traffic

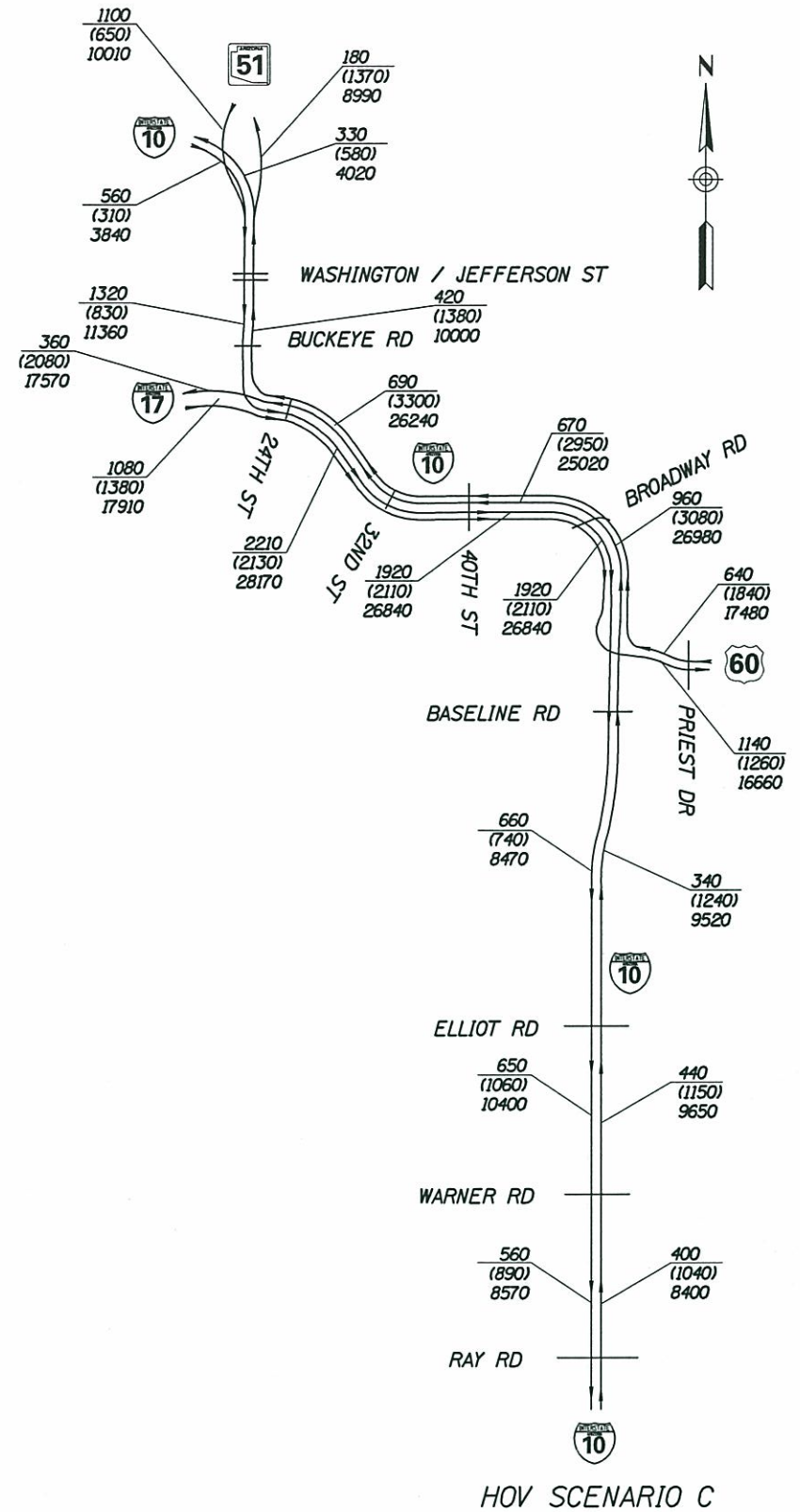
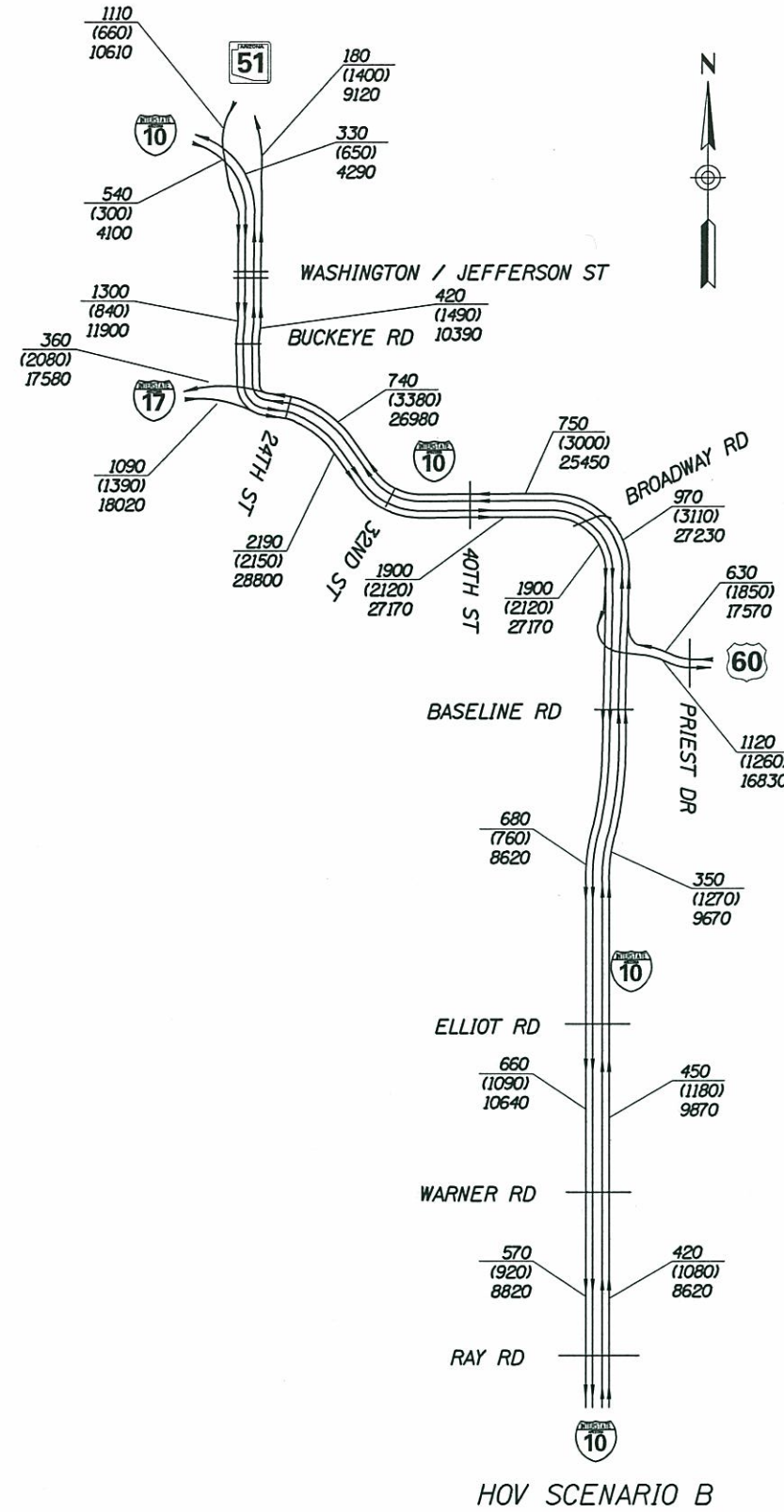
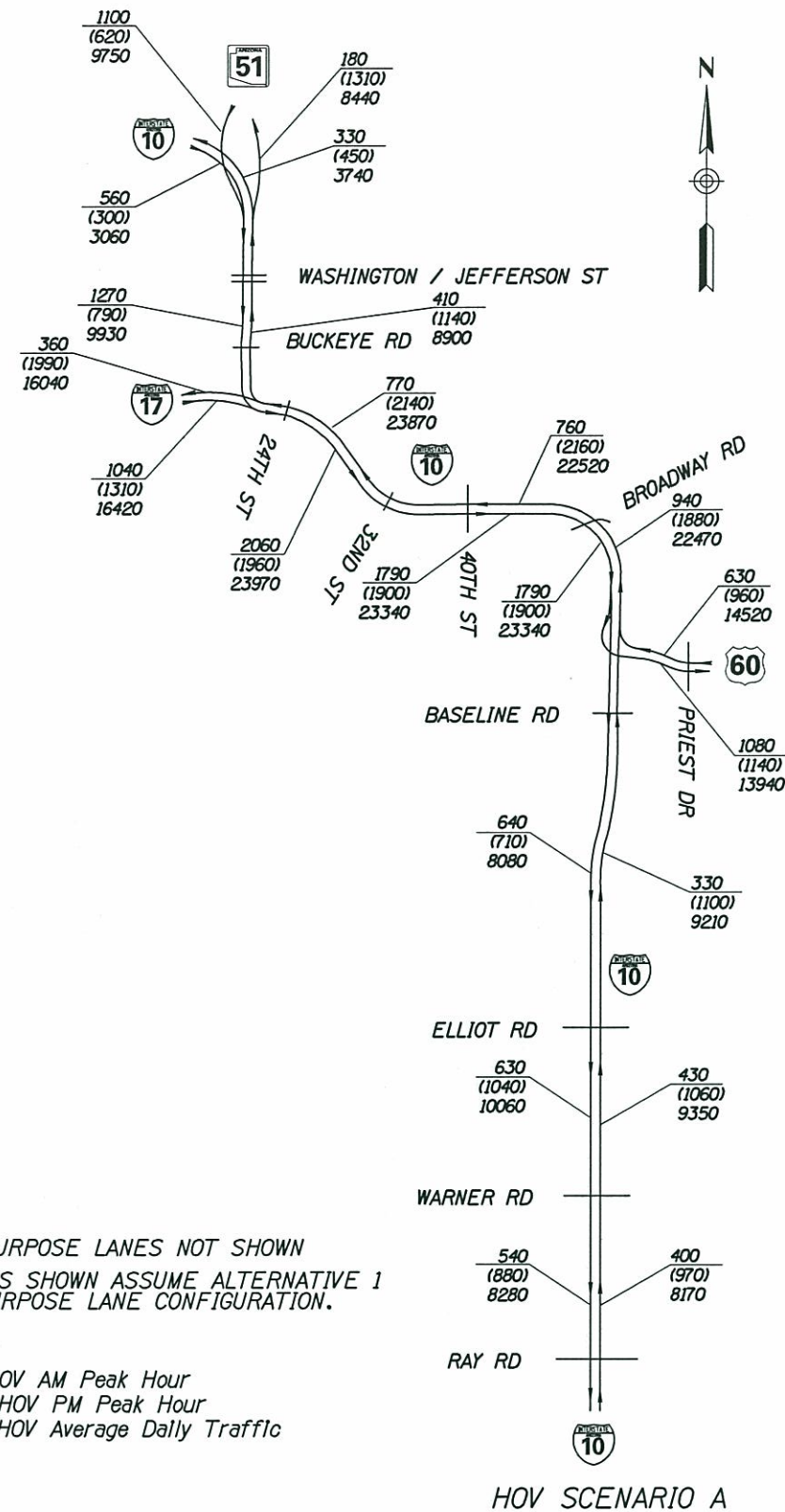
**I-10 CORRIDOR IMPROVEMENT STUDY**

**DMJM HARRIS | AECOM**

NOT TO SCALE - SCHEMATIC ONLY

**FIGURE 6  
EXISTING  
2006 TRAFFIC VOLUMES  
SHEET 5 OF 5**

4/10/2007 n:\5445\Design\tra\2030 ASR GRAPHICS\HOV\HOV\_LANE DIAGRAM SCHEMATIC \_rev.dgn



# I-10 CORRIDOR IMPROVEMENT STUDY

DMJM HARRIS | AECOM

NOT TO SCALE - SCHEMATIC ONLY

FIGURE 7  
HOV LANE SCENARIOS  
2025 TRAFFIC VOLUMES  
SHEET 1 OF 1

### 2.3.3 Recommendation

As shown in Figure 7, the Year 2025 A.M. and P.M. peak hour HOV lane volumes are similar for all scenarios within the segment of I-10 between SR 51 and I-17, and between Baseline Road and Chandler Boulevard. The peak hour HOV lane volumes are below the single HOV lane threshold identified in the *Value Lanes Study*. Within the segment of I-10 between I-17 and US 60, the Year 2025 peak hour HOV lane volumes indicate two HOV lanes would be warranted in each direction of travel. Therefore, HOV Scenario C was initially recommended based on the projected HOV travel demand for Year 2025.

Year 2030 traffic volume projections were obtained for the recommended HOV Scenario C to evaluate the HOV demand on I-10 with the inclusion of the multi-modal transportation plan adopted with the RTP. The traffic volume projections received from MAG are shown in Figure 8, and confirmed the selection of HOV Scenario C.

## 2.4 OPERATIONAL ANALYSIS METHODOLOGY

The Maricopa Association of Governments (MAG) provided traffic volume projections for Design Year 2030. MAG maintains a regional traffic forecasting model to develop future traffic volume projections based on projected socio-economic, population, employment, origin-destination, and other regionally based data. The output from the model includes daily, peak period, and peak hour traffic volumes for general-purpose and HOV lanes for the regional freeway system.

The 2030 model used by MAG includes the 2030 population forecasts for the region, and includes the multi-modal transportation system that is included in the RTP. All freeway improvements identified in the RTP, including the South Mountain Freeway, are included in the freeway network.

Network simulation output was provided by MAG for Alternatives 1 and 2 that are described in Section 2.5. The 2030 traffic volume projections that were received from MAG were used in the analysis without post-processing. The 2030 traffic volume projections for the individual alternatives are included in Appendices C and D.

The 2030 traffic volume projections were compared with the 2025 volume projections received from MAG in 2003 prior to the adoption of the RTP. The following is a summary of the comparative evaluation and conclusions reached by the study team for the Alternatives Selection Report phase of this study:

- **Average Daily Traffic (ADT)(2030):** the ADT volumes provided for the No-Build and Alternative 1 Express/Local lanes alternatives were higher than the 2025 volumes. The higher demand for these alternatives represent the additional traffic growth in the I-10 corridor resulting from higher population projections in the region, and higher employment anticipated in the Phoenix central business district and within the area surrounding the I-10 corridor.

In general, the ADT volumes associated with Alternative 2 were similar to the 2025 volumes.

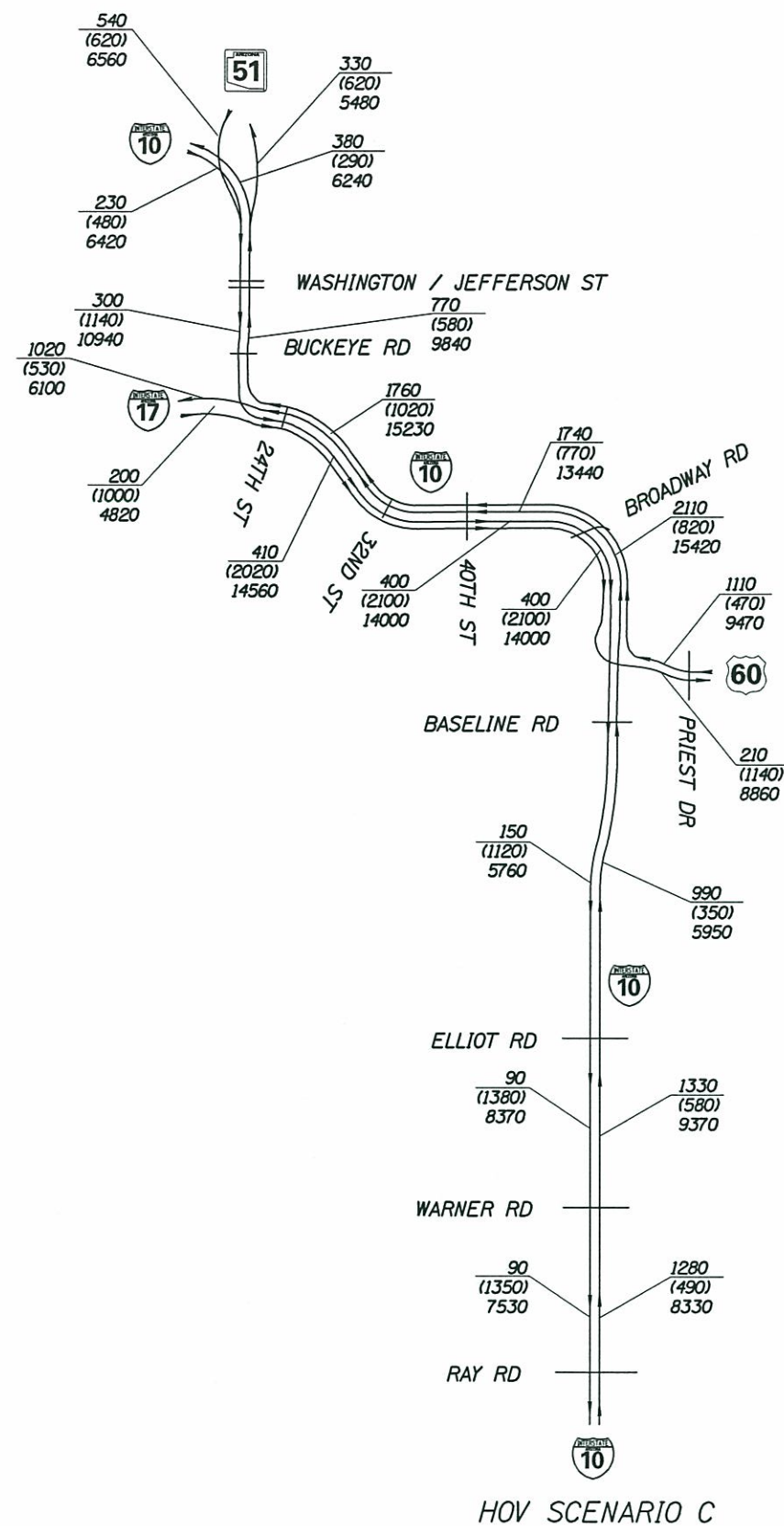
- **A.M. Peak Hour Volumes (2030):** The westbound I-10 express and local lane volumes were similar to the 2025 volumes. However, the distribution of traffic between the westbound express and local lanes varied from the 2025 volumes depending on the specific location within the study limits. The eastbound express and local lane volumes were approximately 40-50% lower than the 2025 projections.
- **P.M. Peak Hour Volumes (2030):** The eastbound I-10 express and local lane volumes were similar to the 2025 volumes. However, the distribution of traffic between the eastbound express and local lanes varied from the 2025 volumes depending on the specific location within the study limits. The westbound express and local lane volumes were approximately 10-30% lower than the 2025 projections.
- **Recommendation:** In general, the traffic volume projections are reasonable on the I-10 express and local lanes in the peak directions of travel. Since the capacity and level-of-service analysis of the proposed roadway improvements is based on the peak direction of travel, the project stakeholders agreed the 2030 peak hour volumes received from MAG should be used for the initial alternatives development phase of the study process.

Upon completion of the Tier 1 alternatives screening process, updated traffic volume projections will be obtained from MAG that represent the roadway alternatives carried forward for detailed evaluation with the DCR and EIS. Post processing of the volumes will be conducted at that time.

An operational analysis was performed for all segments of I-10, I-17, US 60, and SR 143 within the study area. The CORSIM computer program was used to provide a simulation of the entire freeway system within the study area. CORSIM is a microscopic traffic simulation program that uses roadway geometry and traffic volume inputs to simulate operations of an entire freeway network. CORSIM has the ability to provide various measures of effectiveness for each link within the system. The vehicle density and speed outputs from CORSIM were used as the measure of effectiveness to relate to a level-of-service as established by the Highway Capacity Manual (HCM).

The concept of level-of-service (LOS) uses qualitative measures that characterize operational conditions within a stream of traffic. The descriptions of individual levels-of-service characterize these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience. Six levels of service are defined for each type of facility for which the analytical procedures are available. They are given letter designations from 'A' to 'F', with LOS 'A' representing the best operational conditions and LOS 'F' representing an over-capacity condition with a high degree of congestion. Each level of service represents a range of operating conditions.

4/10/2007 n:\5445\Design\tr-a\2030 ASR GRAPHICS\HOV\HOV.dgn



**NOTE:**

1. THE EXPRESS AND LOCAL LANES ARE NOT SHOWN
2. HOV VOLUMES SHOWN ASSUME ALTERNATIVE 2 EXPRESS/LOCAL LANES CONFIGURATION.

**LEGEND**

xxx - 2030 HOV AM Peak Hour  
(xxx) - 2030 HOV PM Peak Hour  
xxxx - 2030 HOV Average Daily Traffic

I-10 CORRIDOR IMPROVEMENT STUDY  
DMJM HARRIS | AECOM

NOT TO SCALE - SCHEMATIC ONLY

FIGURE 8  
RECOMMENDED HOV LANES  
WITH 2030 VOLUMES

Table 16 below depicts the vehicle densities (vehicles per mile per lane) and corresponding levels-of-service established in the HCM:

Table 16 – Vehicle Densities and Corresponding Levels-of-Service

Level-of-Service	Density Range (pc/mi/ln)
A	0-11
B	>11-18
C	>18-26
D	>26-35
E	>35-45
F	>45

Source: 2000 HCM, pg. 23-3

In order to verify the CORSIM output, additional analyses were performed using the Highway Capacity Software (HCS), which uses the procedures from the 2000 Highway Capacity Manual (HCM) to provide the traffic operational characteristics in terms of level-of-service. One of the major disadvantages of using HCS for analyzing a major freeway network is that it does not address the cumulative effects of delay on an entire system. HCS only allows for the evaluation of a single location within an overall system and does not take into account the effects of conditions upstream and downstream. For example, a severe upstream “bottleneck” may limit the amount of traffic reaching a downstream location. Similarly, a severe downstream “bottleneck” may cause queuing to such an extent that it effects an upstream location. Therefore, CORSIM was used to evaluate the entire system and HCS was used to verify the CORSIM results.

The following CORSIM model input assumptions were used for the operational analysis:

- Free flow speed of 65 mph for the I-10 express lanes
- Free flow speed of 50 mph for the I-10 local lanes
- Free flow speed of 65 mph for the I-17, SR 143 and US 60 mainlines
- Free flow speed of 55 mph for the system interchange ramps
- Free flow speed of 50 mph for the service interchange ramps
- Commercial vehicle percentage was assumed to be 5% during peak hours

The commercial vehicle percentage is based on recent experience in observing the existing traffic conditions and performing operational analysis for projects on the Regional Freeway System, and not on the existing ADOT count data. The Arizona State Highway System Log shows a daily (24 hour) commercial vehicle percentage of 9% within this study area. However, this is based on 24 hour volumes and is not representative of the operating conditions during the peak hour. Recent traffic counts indicate that slightly less than 5% of the vehicles in the peak hour would be classified as commercial vehicles. However the 5% default suggested by the Highway Capacity Manual was used for the operational analysis.

2.5 I-10 WIDENING ALTERNATIVES

Five I-10 Widening Alternatives were developed for evaluation that include the following:

- No-Build Alternative
- Alternative 1: 1988 Express/Local Lanes Concept
  - Original Concept adopted in 1988
- Alternative 2: Express/Local Lanes Concept
  - Provides more Express, Local and HOV lanes than Alternative 1
- Alternative 3: Express/Local Lanes Concept (with HOV Viaduct)
  - Same number of Express, Local and HOV lanes as Alternative 2
  - Includes an elevated viaduct for HOV lanes between I-17 and US 60
- Alternative 4: Express/Local Lanes Concept
  - Same as Alternative 2, but shifts one lane from Local Lanes to Express Lanes
- Alternative 5: I-10 Widening Concept
  - Provides more general-purpose and HOV lanes than No-Build Alternative

Traffic operational analyses were conducted for each I-10 Widening Alternative that are fully described in Section 4.0. The following sections describe the alternatives and the analysis results. The lane diagrams, Year 2030 traffic volume projections, and level-of-service analysis results for each I-10 Widening Alternative are included in Appendix C.

In accordance with the goals established for this study, I-10 should operate with level-of-service (LOS) ‘D’ or better operational characteristics between Buckeye Road and Baseline Road. For alternatives that include express and local lanes, the express lanes should operate at LOS ‘D’ or better within the limits of the local lanes. The local lanes may operate with a lower level-of-service, but should not queue traffic to the extent that would negatively impact the operations of the express lanes.

2.5.1 No-Build Alternative

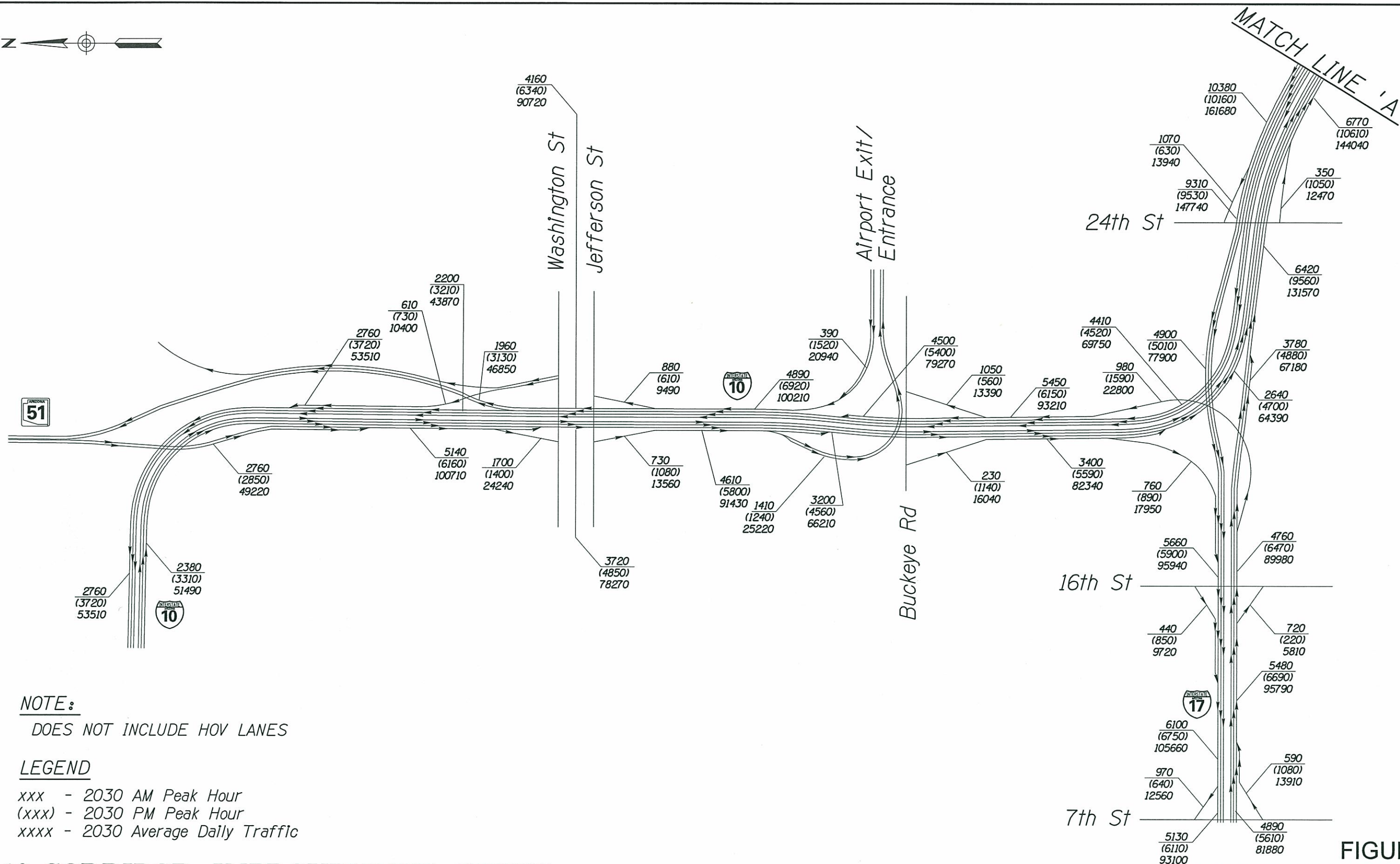
Description of Alternative

The No-Build Alternative would not include any improvements to I-10 within the study area. The lane diagram, 2030 A.M. and P.M. peak hour volumes, and 2030 daily traffic volumes for the No Build Alternative are shown in Figure 9. The total daily traffic volumes projections at selected locations along I-10 are provided in Table 17 on page 81.

Operational Analysis Results

Figure 10 (page 69) and Figure 11 (page 74) summarize the level-of-service analysis results for the 2030 A.M. and P.M. peak hours. Tables 18 and 19 (starting on page 83) summarize the locations where congestion (LOS ‘E’ or ‘F’) would be anticipated to occur with this alternative.

[text resumes on page 79]



**NOTE:**

DOES NOT INCLUDE HOV LANES

**LEGEND**

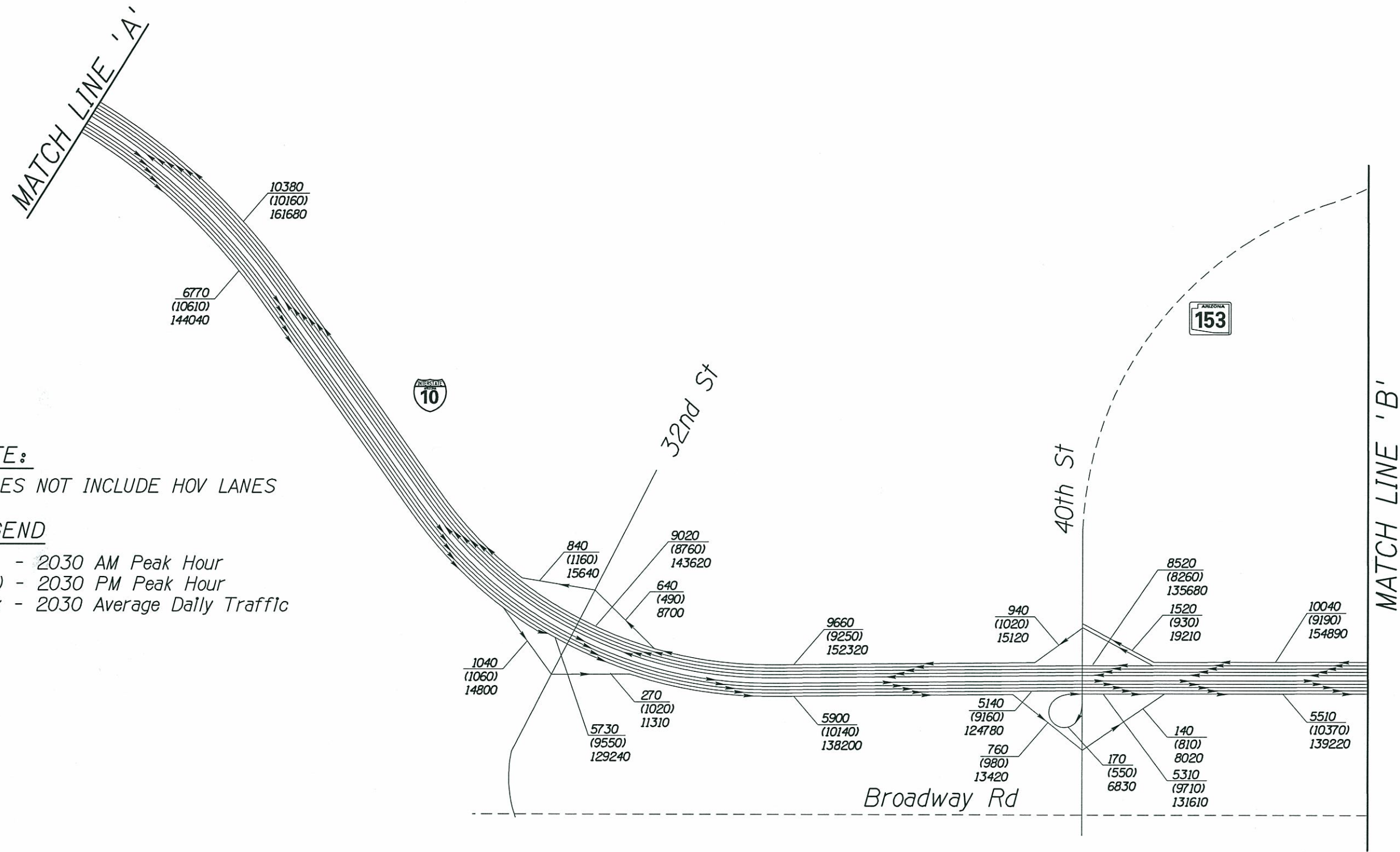
xxx - 2030 AM Peak Hour  
(xxx) - 2030 PM Peak Hour  
xxxx - 2030 Average Daily Traffic

**I-10 CORRIDOR IMPROVEMENT STUDY**  
**DMJM HARRIS | AECOM**

NOT TO SCALE - SCHEMATIC ONLY

**FIGURE 9**  
**NO-BUILD ALTERNATIVE**  
**2030 TRAFFIC VOLUMES**  
**SHEET 1 OF 5**

4/10/2007 n:\5445\Design\tr-a\2030 ASR GRAPHICS\No Build\NBvol2.dgn



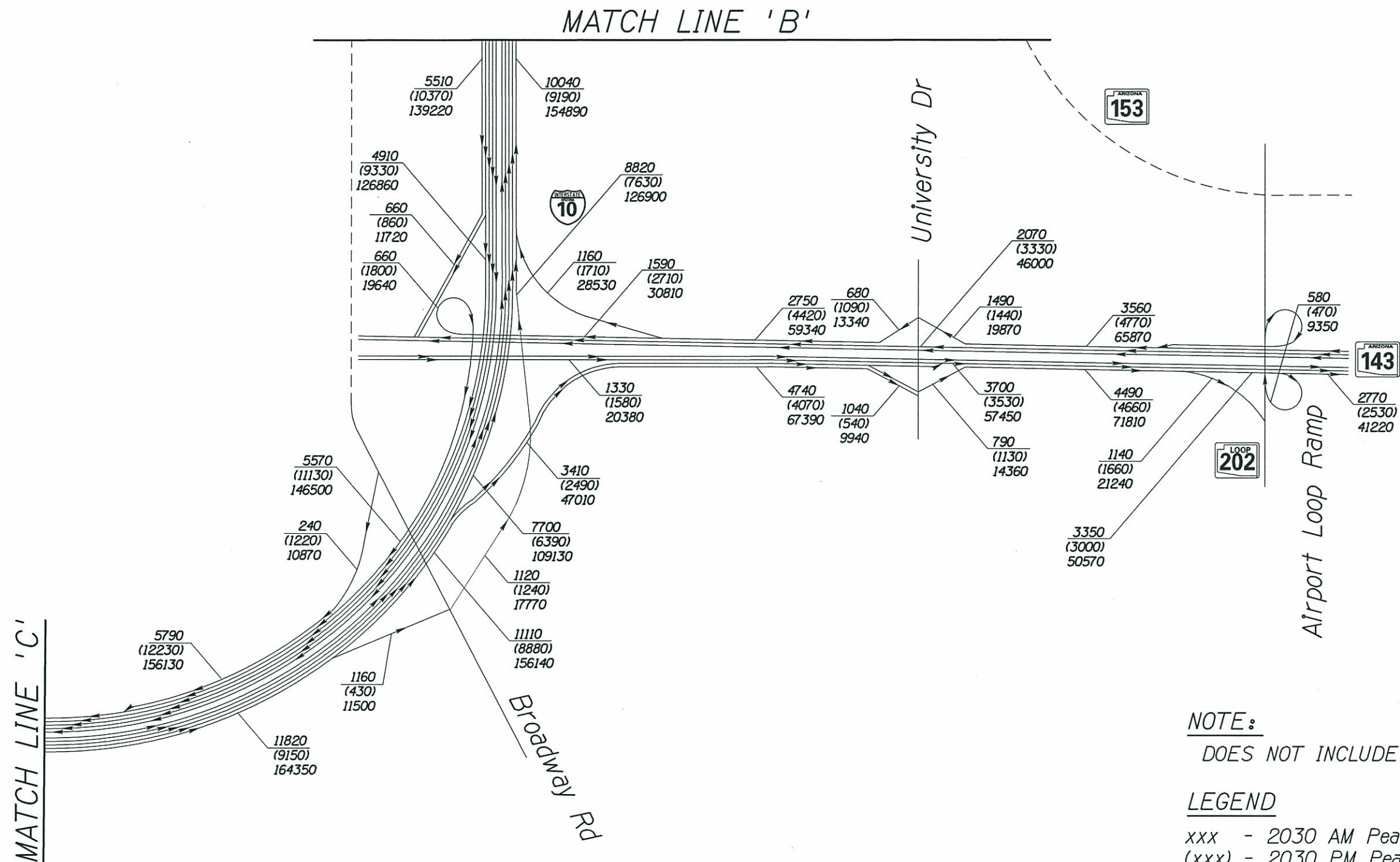
# I-10 CORRIDOR IMPROVEMENT STUDY

DMJM HARRIS | AECOM

NOT TO SCALE - SCHEMATIC ONLY

FIGURE 9  
NO-BUILD ALTERNATIVE  
2030 TRAFFIC VOLUMES  
SHEET 2 OF 5

4/10/2007 n:\5445\Design\tra\2030 ASR GRAPHICS\No Build\NBvol13.dgn



**NOTE:**

DOES NOT INCLUDE HOV LANES

**LEGEND**

xxx - 2030 AM Peak Hour  
(xxx) - 2030 PM Peak Hour  
xxxx - 2030 Average Daily Traffic

**I-10 CORRIDOR IMPROVEMENT STUDY**

**DMJM HARRIS | AECOM**

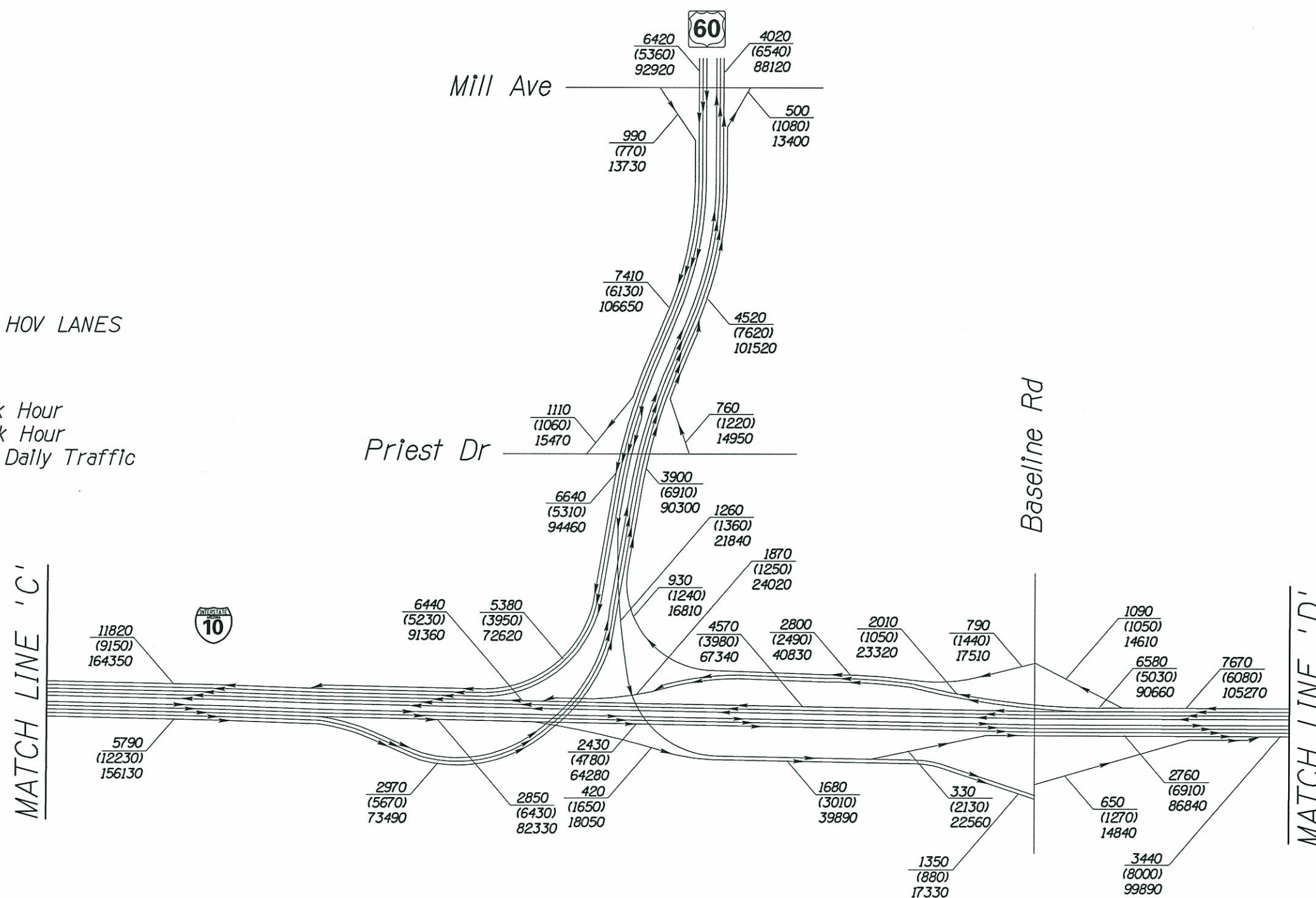
NOT TO SCALE - SCHEMATIC ONLY

**FIGURE 9**  
**NO-BUILD ALTERNATIVE**  
**2030 TRAFFIC VOLUMES**  
**SHEET 3 OF 5**



**NOTE:**  
DOES NOT INCLUDE HOV LANES

**LEGEND**  
xxx - 2030 AM Peak Hour  
(xxx) - 2030 PM Peak Hour  
xxxx - 2030 Average Daily Traffic

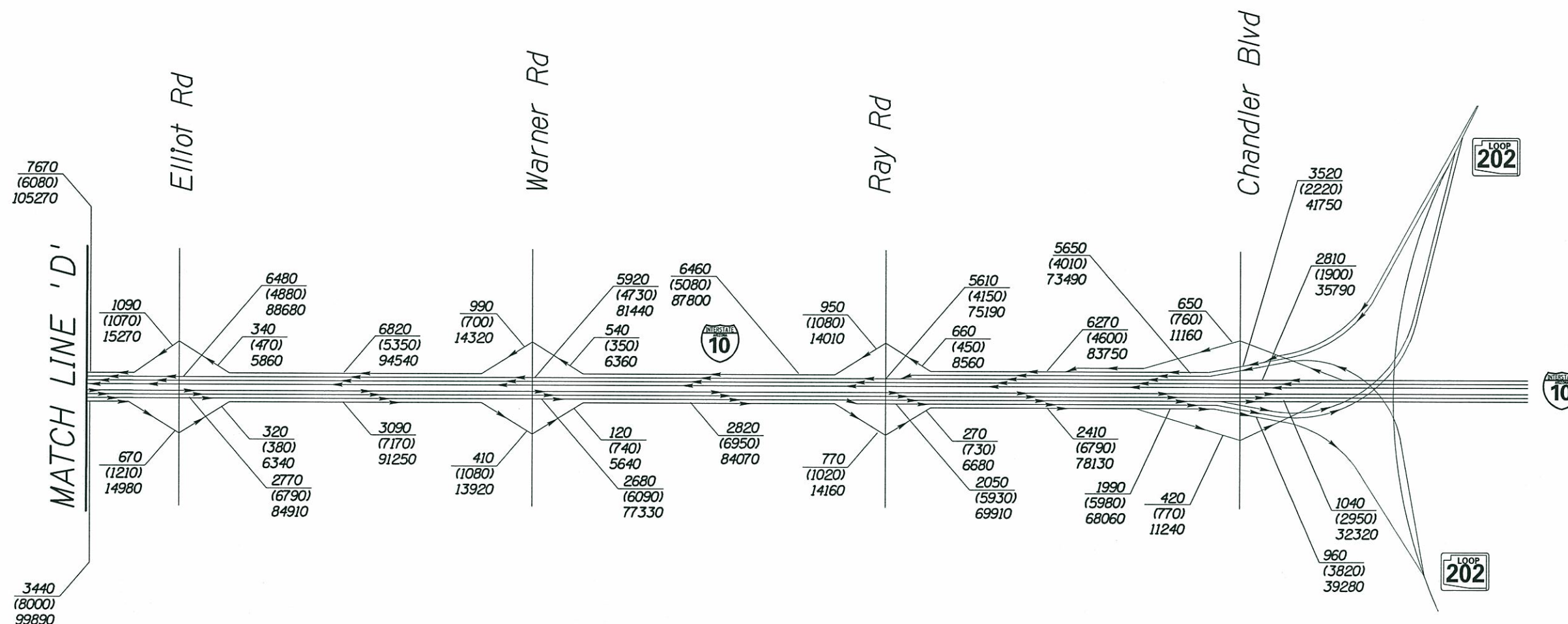


# I-10 CORRIDOR IMPROVEMENT STUDY

DMJM HARRIS | AECOM

NOT TO SCALE - SCHEMATIC ONLY

**FIGURE 9**  
**NO-BUILD ALTERNATIVE**  
**2030 TRAFFIC VOLUMES**  
**SHEET 4 OF 5**



**NOTE:**  
DOES NOT INCLUDE HOV LANES

**LEGEND**  
xxx - 2030 AM Peak Hour  
(xxx) - 2030 PM Peak Hour  
xxxx - 2030 Average Daily Traffic

**I-10 CORRIDOR IMPROVEMENT STUDY**  
**DMJM HARRIS | AECOM**

NOT TO SCALE - SCHEMATIC ONLY

**FIGURE 9**  
**NO-BUILD ALTERNATIVE**  
**2030 TRAFFIC VOLUMES**  
**SHEET 5 OF 5**

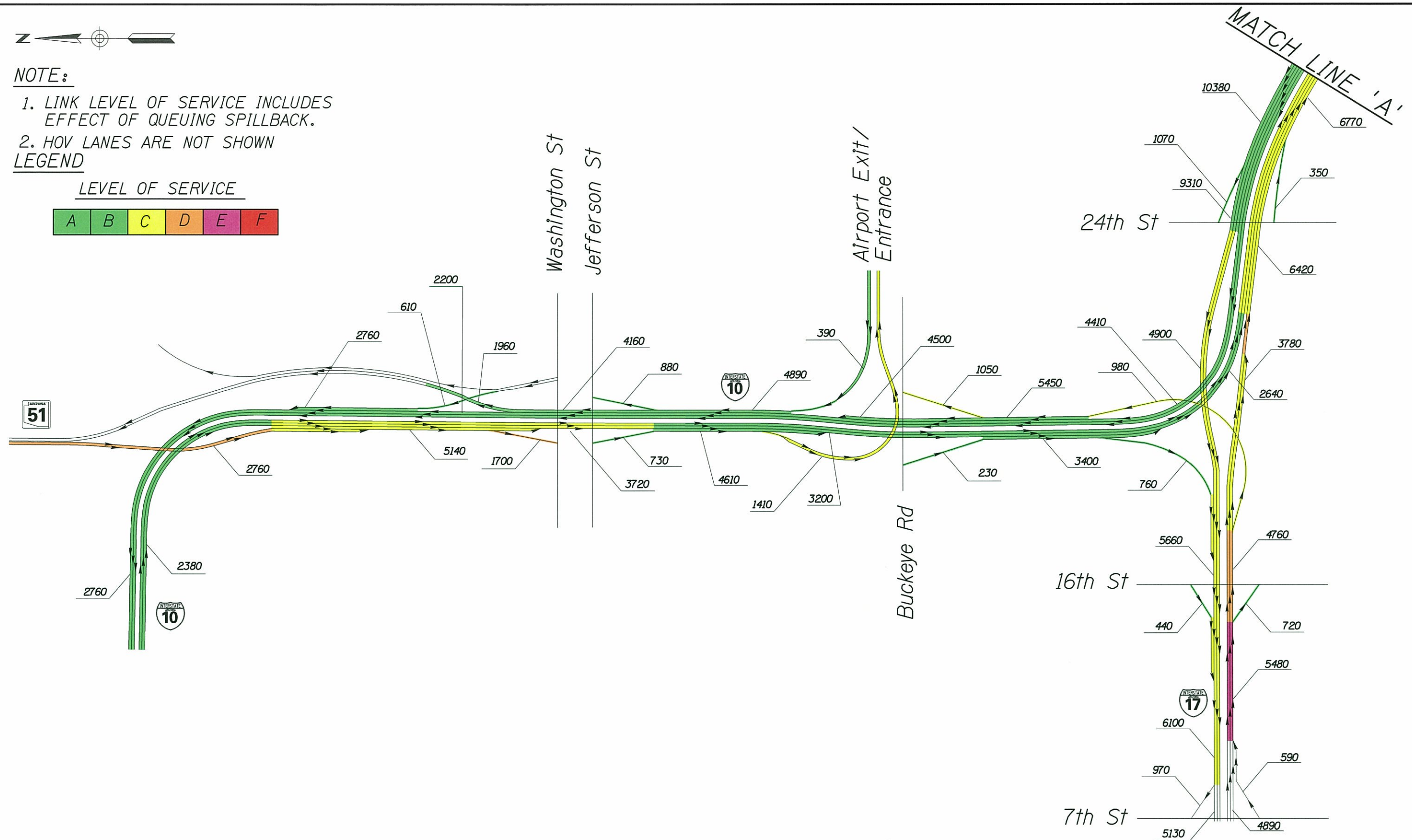


**NOTE:**

1. LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.

2. HOV LANES ARE NOT SHOWN

**LEGEND**  
LEVEL OF SERVICE



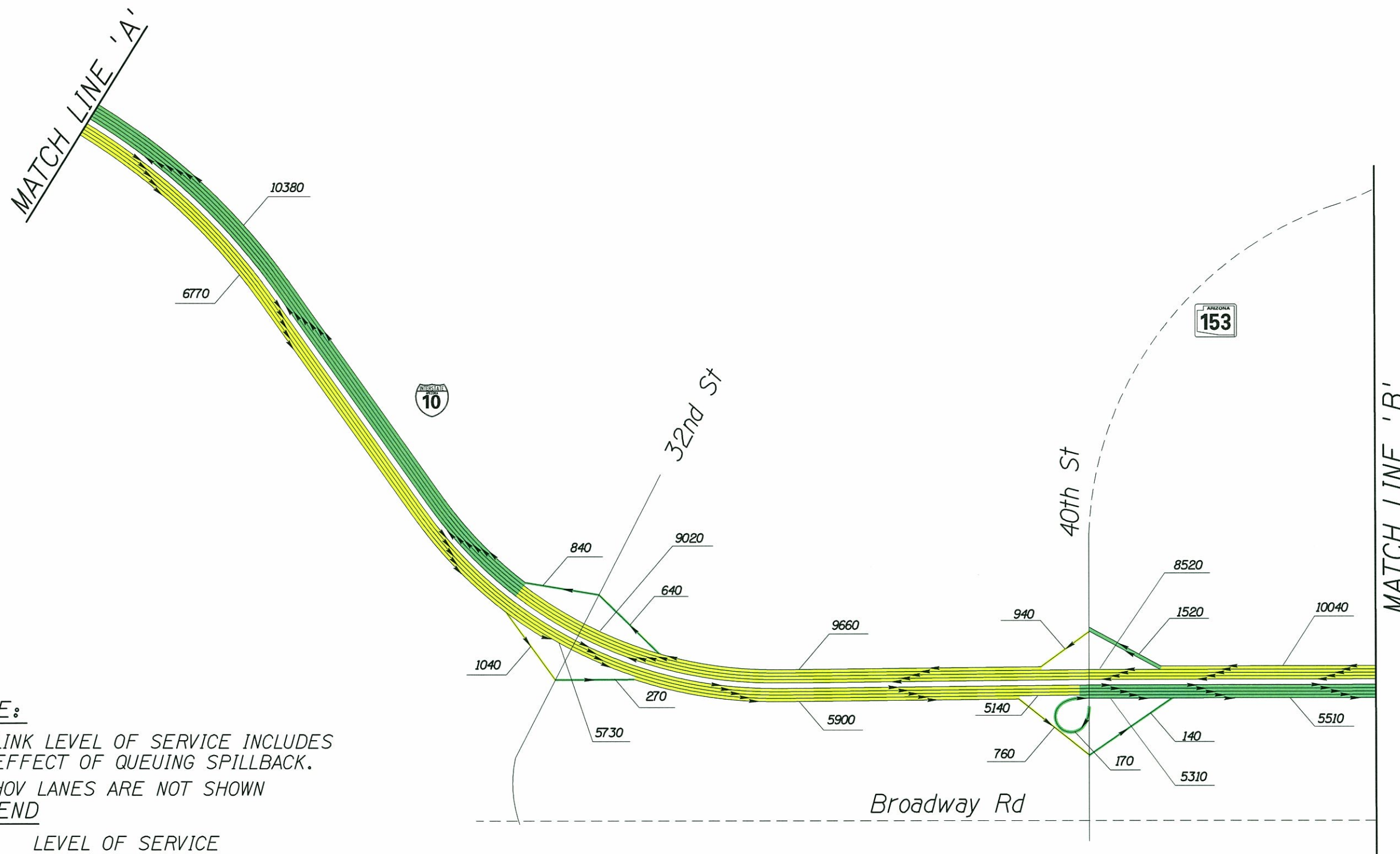
**I-10 CORRIDOR IMPROVEMENT STUDY**

**DMJM HARRIS | AECOM**

NOT TO SCALE - SCHEMATIC ONLY

**FIGURE 10**  
**NO-BUILD ALTERNATIVE**  
**2030 AM LEVEL OF SERVICE**  
**SHEET 1 OF 5**

n:\5445\Design\tra\2030 ASR GRAPHICS\No Build\NBAM2.dgn 4/10/2007



**NOTE:**  
1. LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.  
2. HOV LANES ARE NOT SHOWN

**LEGEND**

LEVEL OF SERVICE					
A	B	C	D	E	F

2. HOV LANES ARE NOT SHOWN  
LEGEND

$A$	$B$	$C$	$D$	$E$	$F$
-----	-----	-----	-----	-----	-----

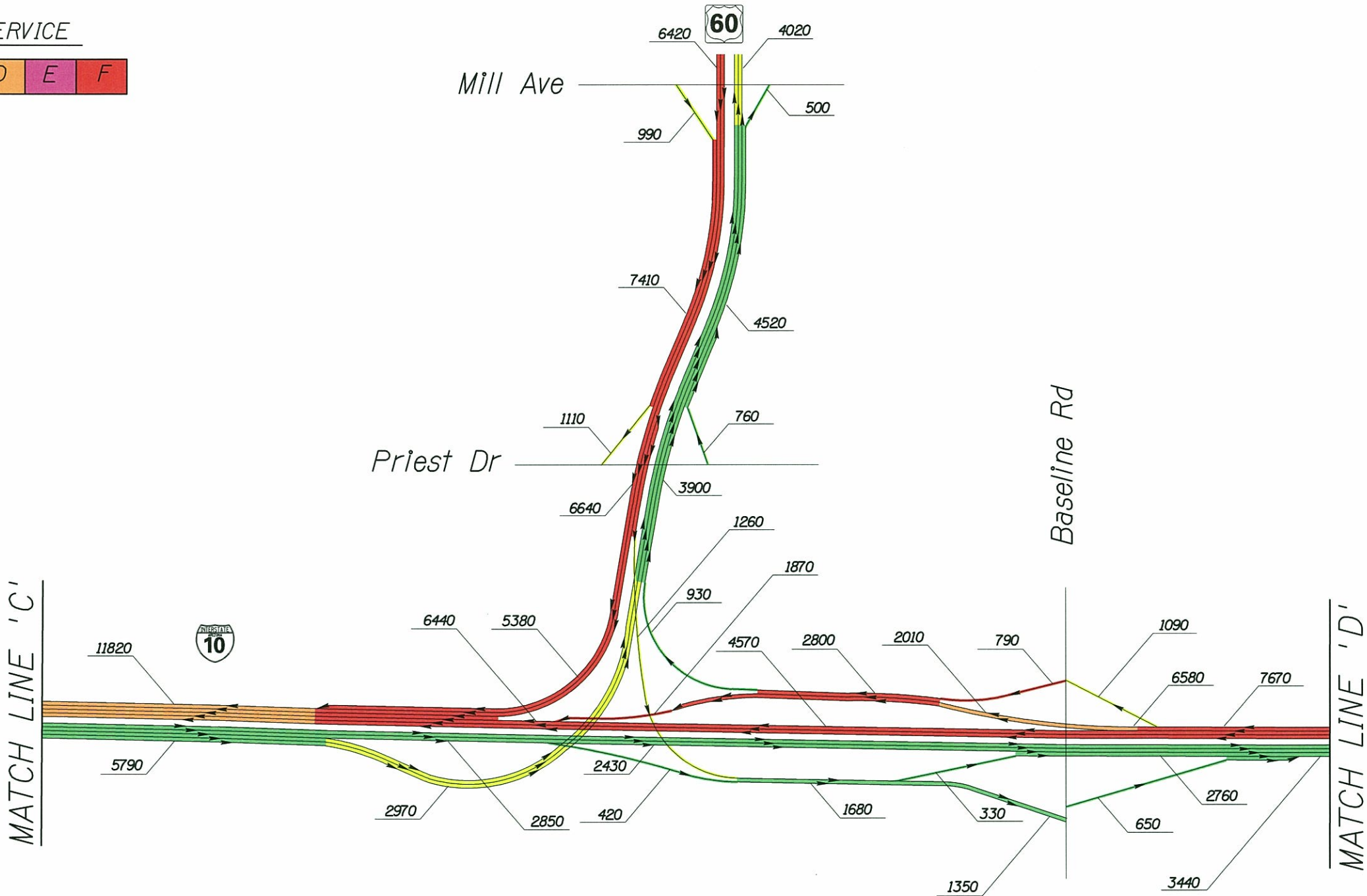
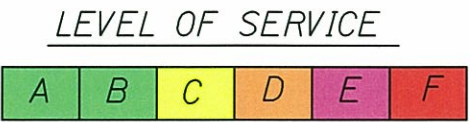


NOT TO SCALE - SCHEMATIC ONLY

NOTE:

- 1. LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.
- 2. HOV LANES ARE NOT SHOWN

LEGEND

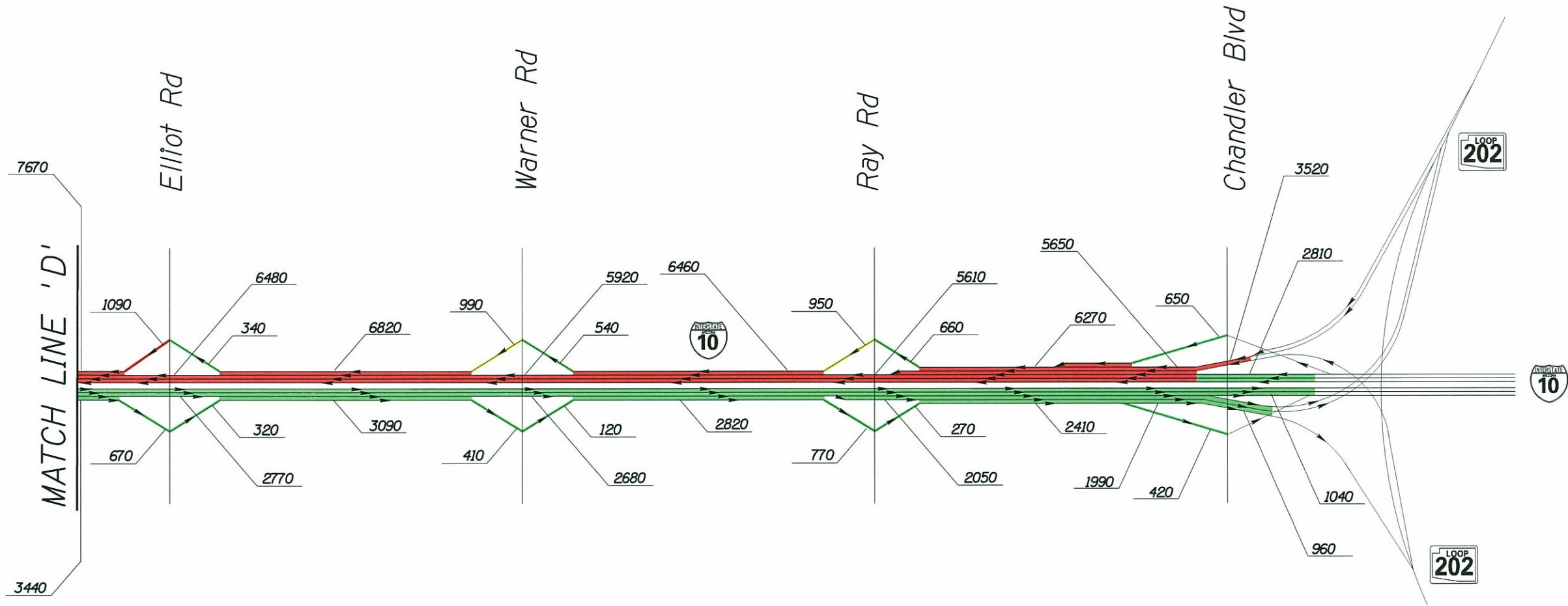


NOTE:

- 1. LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.
- 2. HOV LANES ARE NOT SHOWN

LEGEND

LEVEL OF SERVICE





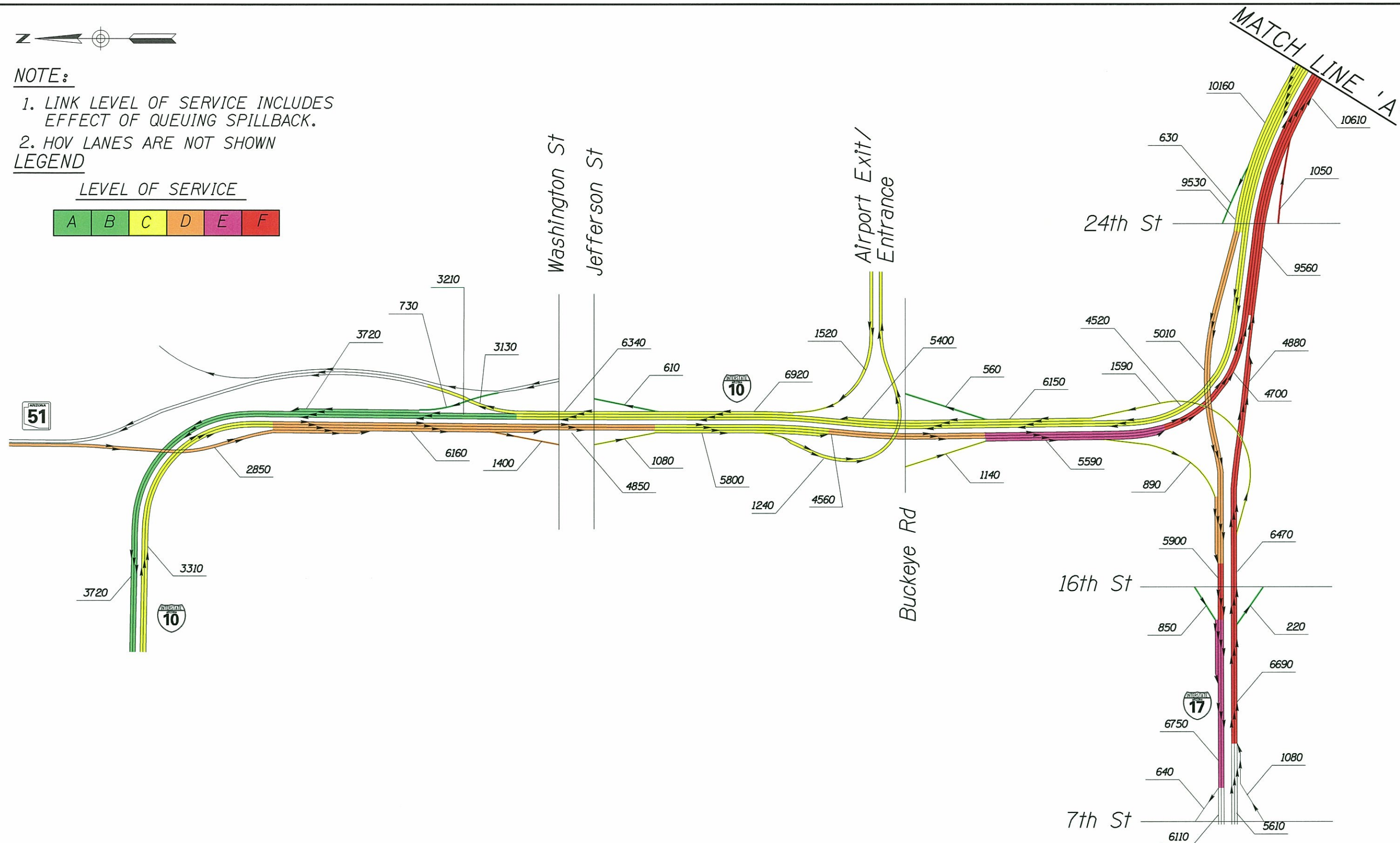
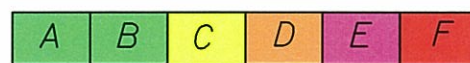
**NOTE:**

1. LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.

2. HOV LANES ARE NOT SHOWN

**LEGEND**

**LEVEL OF SERVICE**



**I-10 CORRIDOR IMPROVEMENT STUDY**

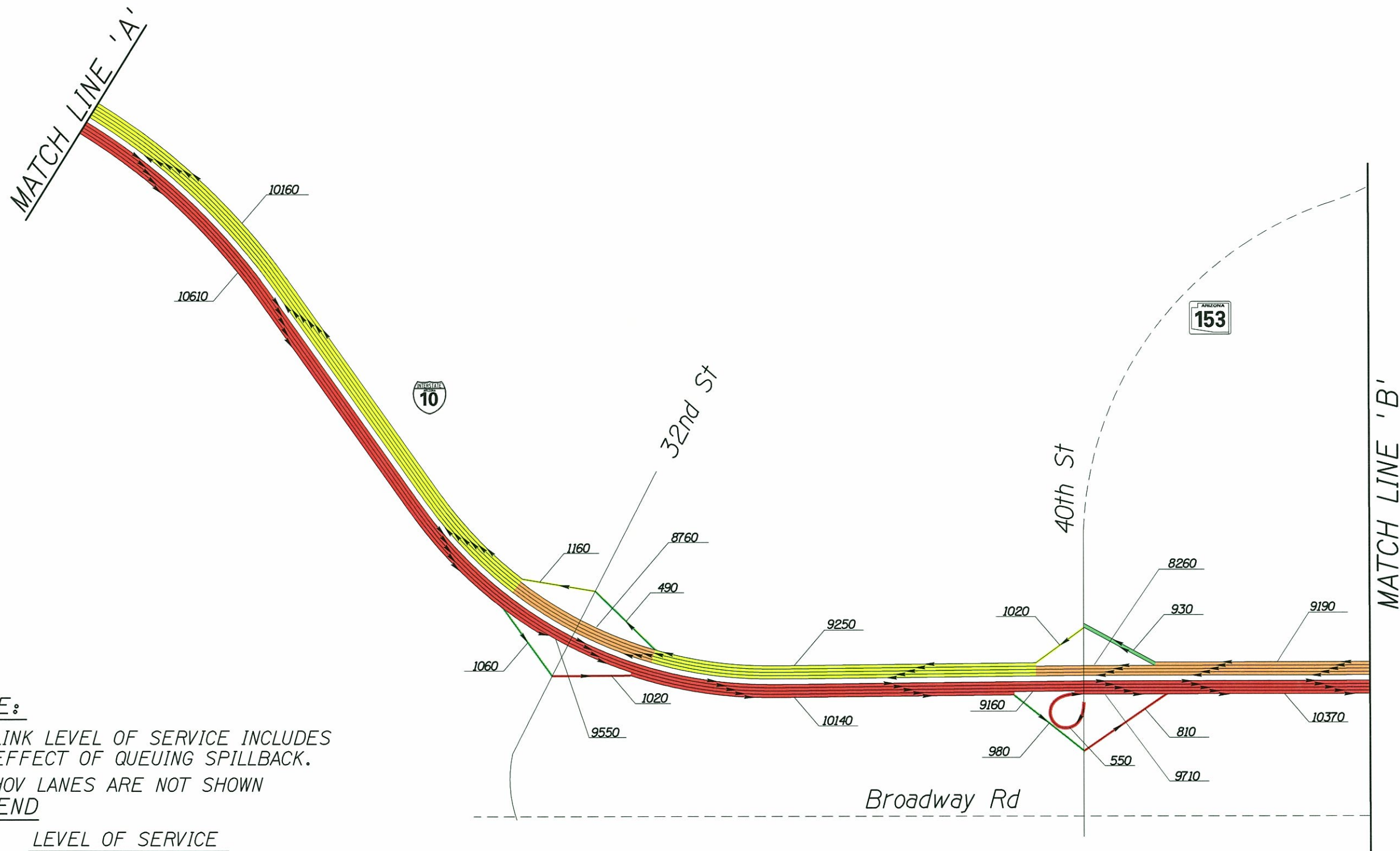
**DMJM HARRIS | AECOM**

NOT TO SCALE - SCHEMATIC ONLY

**FIGURE 11**  
**NO-BUILD ALTERNATIVE**  
**2030 PM LEVEL OF SERVICE**  
**SHEET 1 OF 5**

n:\5445\Design\tra\2030 ASR GRAPHICS\No Build\NBPM2.dgn

4/10/2007



**NOTE:**  
1. LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.  
2. HOV LANES ARE NOT SHOWN

**LEGEND**

LEVEL OF SERVICE					
A	B	C	D	E	F

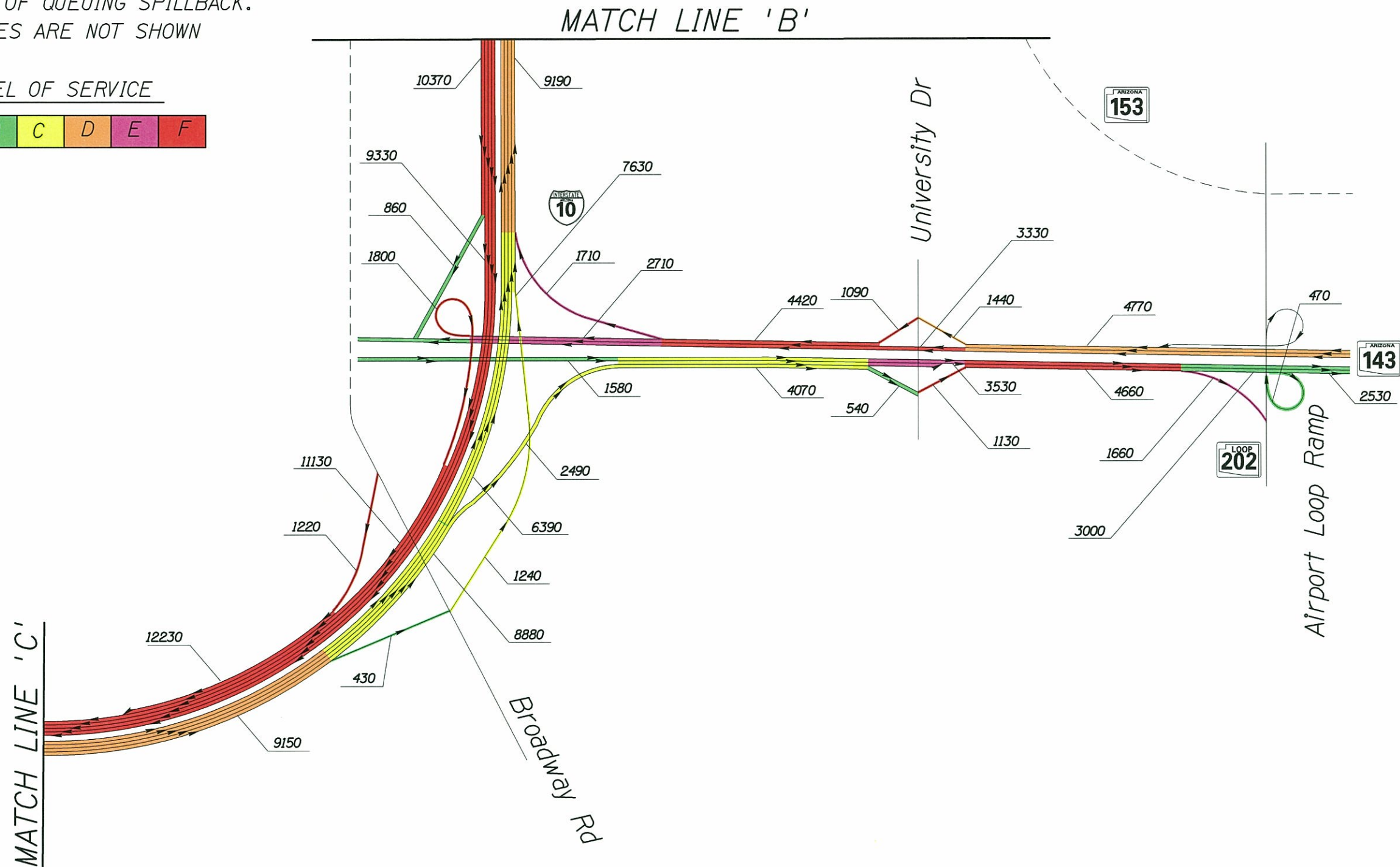
**NOTE:**

1. LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.

2. HOV LANES ARE NOT SHOWN

**LEGEND**

LEVEL OF SERVICE					
A	B	C	D	E	F



**I-10 CORRIDOR IMPROVEMENT STUDY**

DMJM HARRIS | AECOM

NOT TO SCALE - SCHEMATIC ONLY

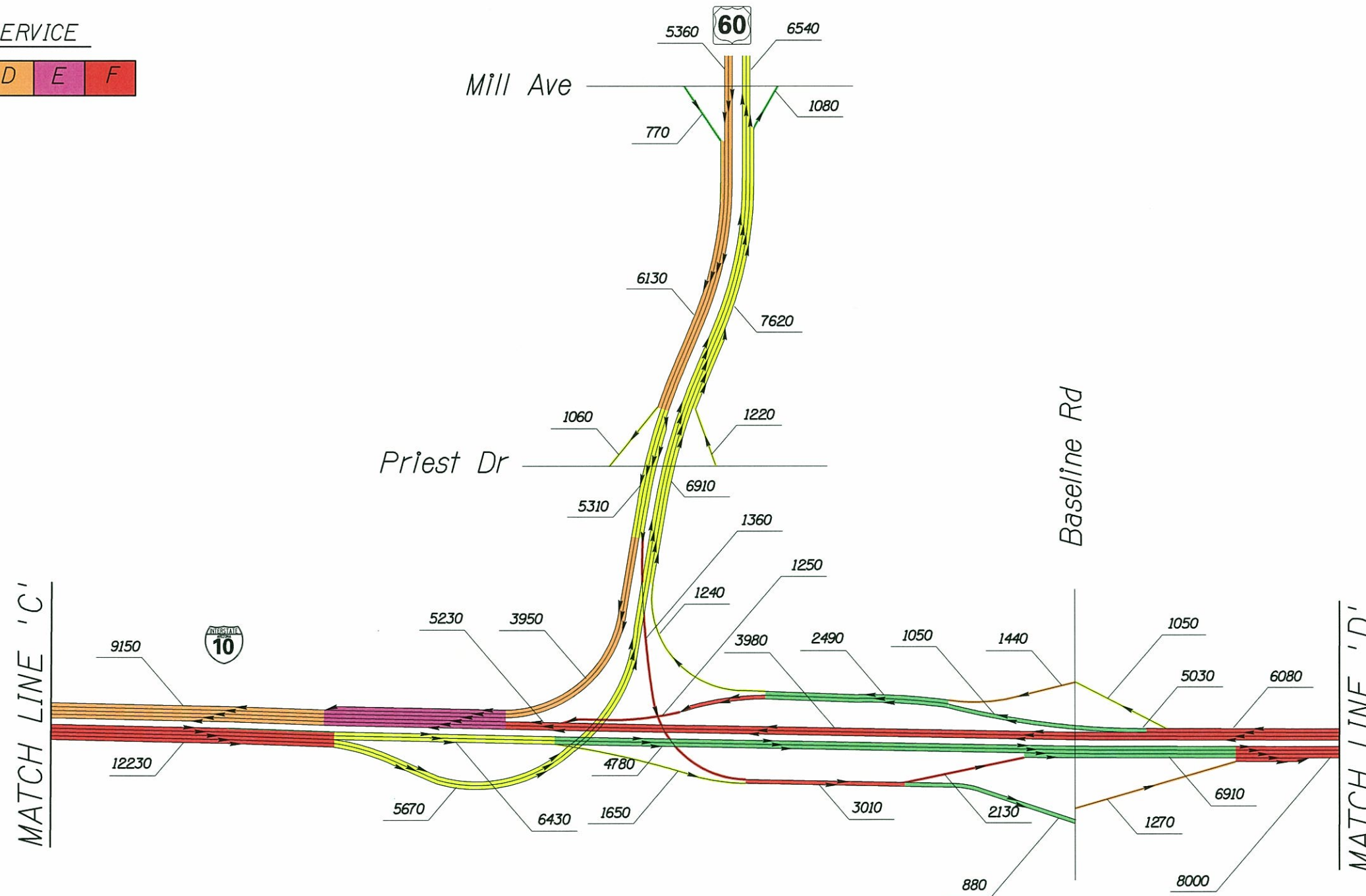
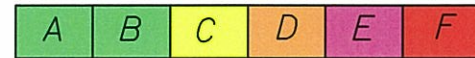
**FIGURE 11**  
**NO-BUILD ALTERNATIVE**  
**2030 PM LEVEL OF SERVICE**  
**SHEET 3 OF 5**

**NOTE:**

1. LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.
2. HOV LANES ARE NOT SHOWN

**LEGEND**

LEVEL OF SERVICE



**I-10 CORRIDOR IMPROVEMENT STUDY**

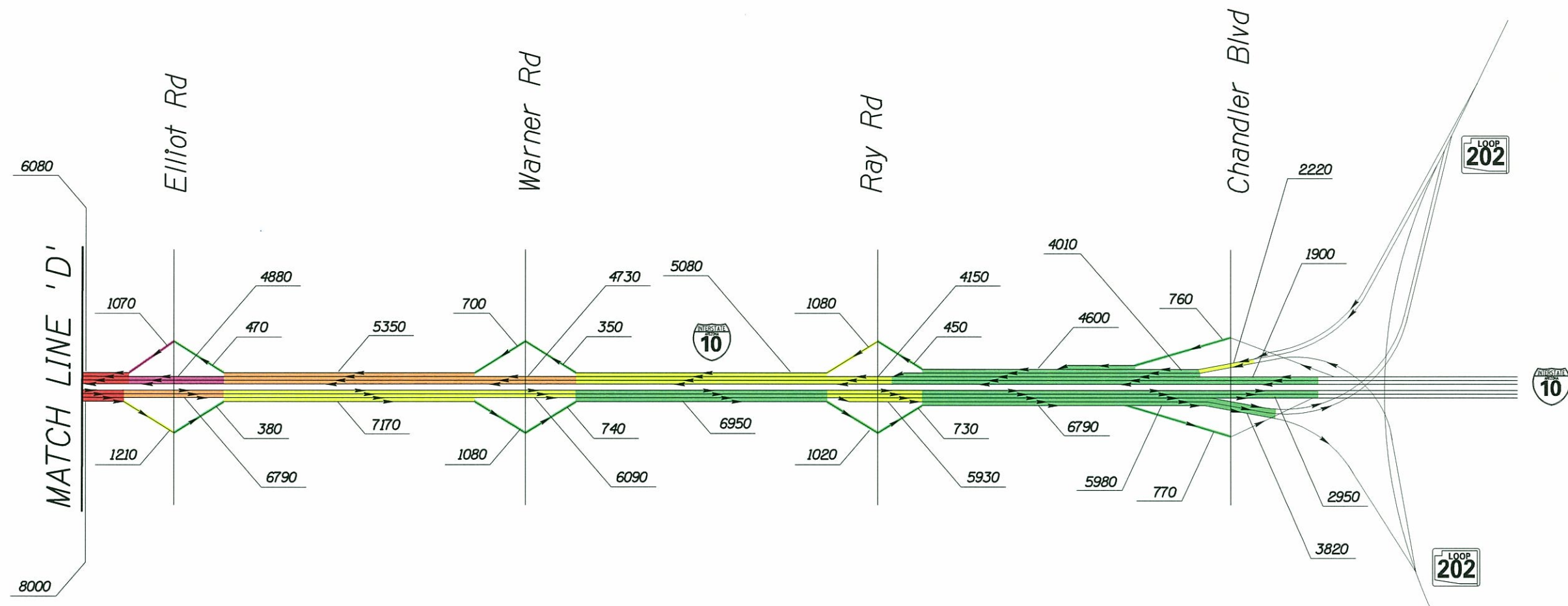
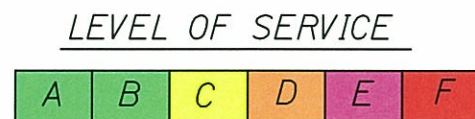
**DMJM HARRIS | AECOM**

NOT TO SCALE - SCHEMATIC ONLY

**FIGURE 11**  
**NO-BUILD ALTERNATIVE**  
**2030 PM LEVEL OF SERVICE**  
**SHEET 4 OF 5**

**NOTE:**

1. LINK LEVEL OF SERVICE INCLUDES EFFECT OF QUEUING SPILLBACK.
  2. HOV LANES ARE NOT SHOWN
- LEGEND**



4/10/2007 n:\5445\Design\tra\2030 ASR GRAPHICS\No Build\NBPM5.dgn

**I-10 CORRIDOR IMPROVEMENT STUDY**

**DMJM HARRIS | AECOM**

NOT TO SCALE - SCHEMATIC ONLY

**FIGURE 11**  
**NO-BUILD ALTERNATIVE**  
**2030 PM LEVEL OF SERVICE**  
**SHEET 5 OF 5**

The results of the level-of-service analysis indicate I-10 would operate at LOS 'E' or 'F' between US 60 and the Santan Freeway in the westbound direction of travel during A.M. peak period. I-10 would also operate at LOS 'E' or 'F' between US 60 and Buckeye Road in the eastbound direction of travel during the P.M. peak period.

Since the number of general-purpose lanes would remain the same on the I-10 at the Broadway Curve, the capacity of I-10 would be restricted to approximately 320,000 vpd at this location. Travel demand above this amount will be required to utilize other freeway corridors, the local street network, or transit opportunities.

## 2.5.2 Alternative 1: 1988 Express/Local Lanes Concept

### Description of Alternative

Alternative 1 was originally developed in the 1980's with the *I-10 Corridor Refinement Study*. This alternative included an Express/Local Lanes configuration between Buckeye and Baseline Roads, and was based on Year 2005 traffic volume projections that estimated approximately 250,000 vpd would travel through the Broadway Curve. Recent traffic count data (2005) indicates the volume of traffic traveling through the Broadway Curve is approximately 294,000 vpd.

The number of express lanes on I-10 would be reduced to develop the local lanes and attempt to minimize impacts to the adjacent development. No additional improvements would be proposed on I-10 north of Buckeye Road or south of Baseline Road to transition the local lanes into the existing freeways. The lane diagram, 2030 traffic volume projections, and level-of-service analysis results for Alternative 1 are included in Appendix C.

The I-10 express lanes would include two to five lanes in each direction of travel between Buckeye and Baseline Roads. The I-10 local lanes would vary from two to three lanes in each direction of travel and would provide access to SR 143 and the local arterial streets. Auxiliary lanes would not be provided between service interchange entrance and exit ramps. Single lane transfer ramps would generally provide connections between the I-10 express and local lanes and vice versa.

The I-10/SR 143 TI would be reconstructed to provide a fully directional freeway-to-freeway system interchange with ramp connections between SR 143 and the I-10 local lanes.

Five express lanes would be provided on westbound I-10 approaching the I-10/I-17 TI. The center lane would operate as an optional lane allowing three lanes each to continue on I-10 and I-17. Two express lanes would be provided on eastbound I-10 through the I-10/I-17 TI.

Four eastbound express lanes would be provided on I-10 approaching the I-10/US 60 TI. Two lanes would continue to the south on I-10, with three lanes continuing to eastbound US 60. Two express lanes would be provided on westbound I-10 through the I-10/US 60 TI.

One HOV lane would be retained in each direction of travel through the study area. An HOV directional ramp connection would not be provided between I-10 (east of the I-10/I-17 TI) and I-17 (west of the I-10/I-17 TI).

## Operational Analysis Results

The total daily traffic volumes projected at selected locations on I-10 are provided in Table 17 on page 81. Tables 18 and 19 (starting on page 83) summarize the locations where congestion (LOS 'E' or 'F') would be anticipated to occur with this alternative.

The Alternative 1 Express/Local lanes concept would provide the capacity for an additional traffic demand of approximately 68,000 vpd at the Broadway Curve, increasing the capacity to approximately 388,000 vpd at that location.

However, the facility would be constrained at the I-10/I-17 TI and the I-10/US 60 TI because two express lanes would be provided on I-10 through these system interchanges. This configuration at the I-10/US 60 TI would create a "bottleneck" that would restrict the allowable traffic growth to only 7,000 vpd for the segment of I-10 between Baseline Road and the Santan Freeway.

One HOV lane would be provided in each direction of travel through the study area. Based upon the year 2030 traffic volume projections, one HOV lane on I-10 would not provide sufficient capacity for the anticipated HOV traffic demand between I-17 and US 60.

An HOV directional ramp connection would not be provided between I-10 (east of the I-10/I-17 TI) and I-17 (west of the I-10/I-17 TI). Traffic using the I-10 or I-17 HOV lanes would be required to weave across the general-purpose lanes approaching and departing the I-10/I-17 TI, inducing congestion in these areas.

## 2.5.3 Alternative 2: Express/Local Lanes Concept

### Description of Alternative

The Alternative 2 Express/Local lanes concept was developed to update Alternative 1 to provide additional capacity needed for the 2030 traffic demand projected for the I-10 corridor, and to meet current design standards and practice. The lane diagram, 2030 traffic volume projections, and level-of-service analysis results for Alternative 2 are included in Appendix C.

At the north and south limits of the local lanes, the development of the entrance and exit transfer ramp connections with I-10, I-17, SR 143 and US 60 were modified to conform to current ADOT design practice for lane continuity and operational efficiency.

I-10 would be widened to include three to six express lanes in each direction of travel between Buckeye and Baseline Roads. The I-10 local lanes would vary from three to four lanes in each direction of travel and would provide access to SR 143 and the local arterial street system. Two lane transfer ramps would provide connections between the express and local lanes and vice versa. Auxiliary lanes would generally be provided between service interchange entrance and exit ramps.

The I-10/SR 143 TI would be reconstructed to provide a fully directional freeway-to-freeway system interchange with ramp connections between SR 143 and the I-10 local lanes.

Six express lanes would be developed on westbound I-10 approaching the I-10/I-17 TI that would allow three lanes each to continue to I-10 and I-17. Three express lanes would be provided on eastbound I-10 through the I-10/I-17 TI.

Six express lanes would be developed on eastbound I-10 approaching the I-10/US 60 TI. Three lanes would continue to the south on I-10, and three lanes would continue to eastbound US 60. Three express would be provided on the westbound I-10 through the I-10/US 60 TI.

A potential future HOV directional ramp connection would be provided between I-10 (east of the I-10/I-17 TI) and I-17 (west of the I-10/I-17 TI). One HOV lane would be retained on I-10 in each direction of travel between SR 51 and I-17. Two HOV lanes would be provided in each direction of travel on I-10 between I-17 and US 60, and one HOV lane would be retained in each direction of travel on I-10 between US 60 and the Santan Freeway.

### Operational Analysis Results

The total daily traffic volumes projected at selected locations on I-10 are provided in Table 17 on page 81. Tables 18 and 19 (starting on page 83) summarize the locations where congestion (LOS 'E' or 'F') would be anticipated to occur with this alternative.

The I-10 express lanes would operate at LOS 'D' or better within the limits of the local lanes. The eastbound and westbound local lanes would operate with congestion during the peak periods, but traffic on the local lanes would not be expected to cause traffic queues that would impact the operations on the I-10 express lanes. The level-of-service would also be improved on I-10 between SR 51 and I-17, and between Baseline Road and Chandler Boulevard.

Due to the additional express lanes provided on I-10 through the I-10/I-17 TI and I-10/US60 TI an additional 42,000 vpd (430,000 vpd total) would be able to travel through the Broadway Curve each day when compared to Alternative 1. The added express lanes on I-10 at the I-10/US 60 TI would also allow for an additional 30,000 vpd to travel on I-10 between Baseline Road and Chandler Boulevard.

The proposed HOV lane configuration would provide the capacity needed for the projected 2030 HOV demand between I-17 and US 60. In addition, the direct HOV ramp connection between I-10 and I-17 (at the I-10/I-17 TI) would improve the future traffic operations on I-10 and I-17 approaching and departing the I-10/I-17 TI.

#### 2.5.4 Alternative 3: Express/Local Lanes Concept (With HOV Viaduct)

### Description of Alternative

Alternative 3 would modify the Alternative 2 configuration to provide an elevated viaduct structure for the HOV lanes between I-17 and US 60. The viaduct would begin east of 24<sup>th</sup> Street and continue to the east to Alameda Drive as shown in Appendix C. All roadway elements proposed for I-10, I-17, SR 143 and US 60 are similar to Alternative 2.

Alternative 3 was developed to evaluate the feasibility of elevating the HOV lanes (2 lanes in each direction) on a viaduct bridge to reduce the overall width of the proposed freeway improvements. The narrower right-of-way width might reduce the impacts on the adjacent commercial and residential developments.

### Operational Analysis Results

The level-of-service analysis results for Alternative 3 would be the same as Alternative 2.

#### 2.5.5 Alternative 4: Express/Local Lanes Concept

### Description of Alternative

Alternative 4 would modify the Alternative 2 configuration by removing one lane in each direction of travel from the I-10 local lanes, and adding those lanes to the I-10 express lanes. This alternative was developed to evaluate how the I-10 express and local roadways would operate when compared to Alternative 2. The lane diagram, 2030 traffic volume projections, and level-of-service analysis results for Alternative 4 are included in Appendix C.

At the north and south limits of the local lanes, the development of the entrance and exit transfer ramp connections with I-10, I-17, SR 143 and US 60 were modified to conform to ADOT design practice for lane continuity and operational efficiency similar to Alternative 2.

I-10 would include three to seven express lanes in each direction of travel between Buckeye and Baseline Roads. The I-10 local lanes would vary from two to three lanes in each direction of travel and would provide access to SR 143 and the local street network. Two lane transfer ramps would provide connections between the express and local lanes and vice versa. Auxiliary lanes would generally be provided between service interchange entrance and exit ramps.

The I-10/SR 143 TI would be reconstructed to provide a fully directional freeway-to-freeway system interchange with ramp connections between SR 143 and the I-10 local lanes.

Six express lanes would be developed on westbound I-10 approaching the I-10/I-17 TI that would allow three lanes each to continue to I-10 and I-17. Three express lanes would also be provided on the eastbound I-10 through the I-10/I-17 TI.

Six express lanes would be developed on eastbound I-10 approaching the I-10/US 60 TI. Three lanes would continue to the south on I-10, and three lanes would continue to eastbound US 60. Three express lanes would be provided on westbound I-10 through the I-10/US 60 TI.

A potential future HOV directional ramp connection would be provided between I-10 (east of the I-10/I-17 TI) and I-17 (west of the I-10/I-17 TI). One HOV lane would be retained on I-10 in each direction of travel between SR 51 and I-17. Two HOV lanes would be provided on I-10 in each direction of travel between I-17 and US 60, and one HOV lane would be retained in each direction of travel between US 60 and the Santan Freeway.

Operational Analysis Results

The total daily traffic volumes projected at selected locations on I-10 are provided in Table 17. Tables 18 and 19 (starting on page 83) summarize the locations where congestion (LOS ‘E’ or ‘F’) would be anticipated to occur with this alternative.

Alternative 4 would shift approximately 1,500 vehicles per hour (vph) from the local lanes to the express lanes in the peak direction of travel when compared to Alternative 2. The eastbound and westbound local lanes would operate with congestion during the peak periods, but traffic on the local lanes would not be expected to cause traffic queues that would impact the operations on the I-10 express lanes. The level-of-service would also be improved on I-10 between SR 51 and I-17, and between Baseline Road and Chandler Boulevard.

Due to the additional express lanes provided on I-10 through the I-10/I-17 TI and I-10/US60 TI an additional 42,000 vpd (430,000 vpd total) would be able to travel through the Broadway Curve each day when compared to Alternative 1. The added express lanes on I-10 at the I-10/US 60 TI would also allow for an additional 30,000 vpd to travel on I-10 between Baseline Road and Chandler Boulevard.

The proposed HOV lane configuration would provide the capacity needed for the projected 2030 HOV demand between I-17 and US 60. In addition, the direct HOV ramp connection between I-10 and I-17 (at the I-10/I-17 TI) would improve the future traffic operations on I-10 and I-17 approaching and departing the I-10/I-17 TI.

2.5.6 Alternative 5: I-10 Widening Concept

Description of Alternative

Alternative 5 would widen the I-10 mainline by one to two lanes in each direction of travel between I-17 and US 60. No additional improvements would be made to the other segments of I-10, I-17, SR 143 and US 60. The lane diagrams, 2030 traffic volume projections, and level-of-service analysis results are included in Appendix C.

Operational Analysis Results

The total daily traffic volumes projected at selected locations on I-10 are provided in Table 17. Tables 18 and 19 (starting on page 83) summarize the locations where congestion (LOS ‘E’ or ‘F’) would be anticipated to occur under this alternative.

Alternative 5 would provide LOS ‘E’ or ‘F’ operating conditions on westbound I-10 during the A.M. peak period between Broadway Road and the Santan Freeway, and LOS ‘E’ or ‘F’ operating conditions on eastbound I-10 during the P.M. peak period between US 60 and I-17.

While Alternative 5 would carry higher volumes of traffic than the “No-Build” alternative, this alternative would result in similar traffic congestion and vehicle queue lengths as the “No-Build” alternative since the existing weaving conditions would remain at the Broadway Curve.

2.5.7 Summary of Level-of-Service Analysis

The level-of-service results for the I-10 widening alternatives are provided graphically in Appendix C and are summarized in Tables 18 and 19. Table 18 shows the locations within the corridor that are anticipated to experience LOS ‘E’ or ‘F’ during the 2030 A.M. peak hour for each alternative. Table 19 shows the locations within the corridor that are anticipated to experience LOS ‘E’ or ‘F’ during the 2030 P.M. peak hour for each alternative.

A summary of the total traffic demand on the I-10 corridor that would be provided with each alternative is provided in Table 17. HOV lane volumes are not included in the table.

Table 17 – 2030 Projected Traffic Volumes Comparison

Location	2030 ADT (both directions) (veh/day)	2030 AM Peak Hour (Westbound) (veh/hour)	2030 PM Peak Hour (Eastbound) (veh/hour)
<b>I-10, I-17 to 32<sup>nd</sup> Street</b>			
No-Build	306,000	10,400	10,600
Alternative 1	361,000	12,400	13,200
Alternative 2	400,000	13,600	15,400
Alternative 4	401,000	13,600	15,400
Alternative 5	383,000	13,200	13,700
<b>I-10, at Broadway Curve</b>			
No-Build	320,000	11,800	12,200
Alternative 1	388,000	15,200	15,300
Alternative 2	428,000	16,900	18,200
Alternative 4	429,000	17,000	18,300
Alternative 5	411,000	15,800	16,900
<b>I-10, Elliott Road to Warner Road</b>			
No-Build	186,000	6,800	7,200
Alternative 1	193,000	7,000	7,500
Alternative 2	221,000	8,700	9,300
Alternative 4	222,000	8,800	9,400
Alternative 5	222,000	8,600	9,500
<b>US 60, Priest Drive to Mill Avenue</b>			
No-Build	210,000	7,400	7,600
Alternative 1	230,000	9,000	8,000
Alternative 2	248,000	9,000	9,300
Alternative 4	248,000	9,000	9,400
Alternative 5	248,000	9,000	9,300

Note: Volumes do not include the HOV lanes

Approximately 294,000 vehicles per day (vpd) currently travel through the I-10 corridor at the Broadway Curve. In Year 2030, the volume of traffic would only increase by 26,000 vpd (to 320,000 vpd total) for the No-Build alternative due to the constraints in the capacity of the existing facility.

The Alternative 1 Express/Local Lanes concept would provide additional capacity that would allow an additional 68,000 vpd at the Broadway Curve, thereby increasing the total to approximately 388,000 vpd. However, the facility would be constrained at the I-10/I-17 TI and the I-10/US60 TI with only two express lanes on I-10 through these interchanges.

This “bottleneck” would restrict the traffic growth to only 7,000 vpd for the segment of I-10 between Baseline Road and the Santan Freeway when compared to the No-Build Alternative. This situation will cause traffic to divert from I-10 to other freeway corridors and the local arterial street system during the A.M. and P.M. peak travel periods, causing additional congestion on all of the transportation facilities in the area.

The Alternative 2 Express/Local Lanes concept would provide the capacity for approximately 430,000 vpd at the Broadway Curve, which is an additional 42,000 vpd above Alternate 1 and 108,000 above the No-Build Alternative. By adding one express lane on I-10 at the I-10/US60 TI, an additional 30,000 vpd would have the ability to use the I-10 corridor between Baseline Road and Chandler Boulevard.

The additional traffic that could utilize I-10 with Alternatives 2 or 4 would be expected to decrease the volume of traffic that is currently being diverted to other freeway and local arterial streets throughout the study area. If these improvements are not provided, increased congestion on I-10 in the future will cause travelers to divert their trips to other freeway corridors and the local street system, causing these transportation facilities to become increasingly congested.

## 2.6 LOCAL ACCESS OPTIONS

Traffic operational analyses were also conducted for each local access option that was developed with this study. The following sections describe local access options and level-of-service and the analysis results. The lane diagrams, 2030 traffic volume projections, and level-of-service analysis results for each local access option are included in Appendix D.

### 2.6.1 West Entrance to Phoenix Sky Harbor International Airport

#### 2.6.1.1 Option 1: I-10 Widening Alternative 2

##### Description

The existing directional ramp connections would be retained between I-10 and Phoenix Sky Harbor International Airport (PSHIA) at Sky Harbor Boulevard (to/from the north). The ramps that currently provide access between Buckeye Road and I-10 (to/from the east) would be realigned to connect to the eastbound and westbound local lanes.

The existing directional ramp connection between eastbound I-17 and westbound (northbound) I-10 would remain in its current configuration to retain this freeway-to-freeway traffic movement. The Buckeye Road exit ramp would be disconnected from the I-10 express lanes and realigned to connect to the local lanes, thereby removing the direct access between eastbound I-17 and PSHIA. Travelers on eastbound I-17 that are destined for PSHIA would be required to exit from I-17 at 16<sup>th</sup> Street, travel north on 16<sup>th</sup> Street to Buckeye Road, and then continue to the east on Buckeye Road. Traffic that is originating at PSHIA that is destined to westbound I-17 would continue to the west on Buckeye Road to 16<sup>th</sup> Street, travel south on 16<sup>th</sup> Street to I-17, and then enter the westbound I-17 entrance ramp.

## Operational Analysis Results

This option was discussed with Alternative 2 in Section 2.5 of this document. Tables 18 and 19 on pages 81 and 82 summarize the locations where congestion (LOS ‘E’ or ‘F’) would be anticipated to occur with this alternative.

### 2.6.1.2 Option 2: Fully Direction TI with Sky Harbor Boulevard

#### Description

Option 2 was developed to retain the existing I-10 access into PSHIA with directional ramp connections with Sky Harbor Boulevard in all directions of travel. The existing directional ramps (to/from the north) would remain connected to the I-10 express lanes. The new directional ramps (to and from the south) would be connected to the I-10 local lanes.

Access would be restored between PSHIA and I-17, but the new directional ramps would require the Buckeye Road ramps to be removed from service. The new ramp connection between the eastbound local lanes and westbound I-17 would require an additional westbound freeway lane departing the I-10/I-17 TI, which would require the project limits to be extended from 7<sup>th</sup> Street to 7<sup>th</sup> Avenue.

#### Operational Analysis Results

Traffic volumes on the I-10 express and local lanes would not be expected to increase or decrease significantly with this option. The results of a level-of-service analysis indicate the express and local lanes would operate similar to Option No. 1.

The close proximity of the I-10/I-17 TI to Sky Harbor Boulevard (approximately 3,000 feet) would require a short weaving segment on Ramp E-N and the eastbound local lanes. These weaving areas could impact the operational characteristics of these roadways.

### 2.6.1.3 Option 3: Single-Point Urban Interchange at Sky Harbor Boulevard

#### Description

Option 3 was developed to restore full access between PSHIA and I-10 with a single-point urban interchange (SPUI) at Buckeye Road. This alternative would also restore the existing connections between PSHIA and I-17.

Table 18 – 2030 A.M. Peak Hour Level-of-Service Analysis Summary

Alternative	Overall Description	Access Description	Traffic Redistribution (Peak Hour)	2030 A.M. Peak Hour Congestion Areas (LOS 'E' and 'F')				
				I-10 Mainline/Express Lane	I-10 Local Lanes	US 60	SR 143	I-17
No-Build	No-Build Alternative	<ul style="list-style-type: none"><li>Same access as existing</li></ul>	N/A	<ul style="list-style-type: none"><li>Westbound from US 60 to SR 202L</li></ul>	N/A	<ul style="list-style-type: none"><li>Westbound from I-10 to Mill Ave</li></ul>	None	<ul style="list-style-type: none"><li>Eastbound from 16th Street to 7th Street</li></ul>
Alternative 1	1988 Express/Local Lanes Concept	<ul style="list-style-type: none"><li>Buckeye Road, 32nd Street, 40th Street, Broadway Road, Baseline Road (westbound) access to and from Local Lanes</li><li>24th Street and Baseline Road (eastbound) access from I-10 express lanes</li><li>Limited access to Buckeye Road, University Drive, and 48th Street</li><li>Sky Harbor Blvd connection to I-10 to/from the north</li><li>No access from I-17 to PSHIA</li><li>Fully Directional TI at SR 143 with ramp connections to Local Lanes</li><li>SPUI at University Drive with north side ramps connected to SR 143 and south side ramps connected to the 48th Street Northbound and Southbound Connector Roads</li></ul>	N/A	<ul style="list-style-type: none"><li>Westbound from Elliot Road to SR 202L</li></ul>	<ul style="list-style-type: none"><li>Westbound from 40th Street to US 60</li></ul>	<ul style="list-style-type: none"><li>Westbound from I-10 to Mill Avenue</li></ul>	None	None
Alternative 2	Express/Local Lanes Concept; Provides more Express, Local and HOV Lanes than Alternative 1	<ul style="list-style-type: none"><li>See Alternative 1 above</li></ul>	N/A	<ul style="list-style-type: none"><li>Westbound from Baseline Road to Ray Road</li></ul>	<ul style="list-style-type: none"><li>Westbound from 40th Street to US 60</li></ul>	<ul style="list-style-type: none"><li>Westbound from I-10 to Mill Avenue</li></ul>	None	None
Alternative 3	Express/Local Lanes Concept; Provides more Express, Local and HOV Lanes than Alternative 1, Includes an elevated viaduct for the HOV lanes	<ul style="list-style-type: none"><li>See Alternative 1 above</li><li>Includes elevated viaduct for HOV lanes</li></ul>	N/A	<ul style="list-style-type: none"><li>See Alternative 2</li></ul>	<ul style="list-style-type: none"><li>See Alternative 2</li></ul>	<ul style="list-style-type: none"><li>See Alternative 2</li></ul>	<ul style="list-style-type: none"><li>See Alternative 2</li></ul>	<ul style="list-style-type: none"><li>See Alternative 2</li></ul>
Alternative 4	Express/Local Lanes Concept; Same as Alternative 2 but shifts 1 local lane to the express lanes	<ul style="list-style-type: none"><li>See Alternative 1 above</li></ul>	Redistributes approximately 1,500 vph from the local lanes to the express lanes in peak direction of travel	<ul style="list-style-type: none"><li>Westbound from Baseline Road to SR 202L</li></ul>	<ul style="list-style-type: none"><li>Westbound from 40th Street to US 60</li></ul>	<ul style="list-style-type: none"><li>Westbound from I-10 to Priest Drive</li></ul>	None	None
Alternative 5	I-10 Widening Concept; Provides more general-purpose and HOV lanes than the "No-Build" Alternative	<ul style="list-style-type: none"><li>Local access from the I-10 mainline</li><li>Limited access to University Drive and 48th Street</li><li>Fully directional TI at SR 143 with ramp connections to the I-10 mainline</li><li>Full TI at University Drive with north side ramps connected to SR143 and south side ramps connected to the 48th Street Northbound and Southbound Connector Roads</li><li>Sky Harbor Boulevard connection to I-10 to/from the north</li></ul>	N/A	<ul style="list-style-type: none"><li>Westbound from Broadway Road to SR 202L</li></ul>	N/A	<ul style="list-style-type: none"><li>Westbound from Priest Drive to Mill Avenue</li></ul>	<ul style="list-style-type: none"><li>Northbound from University Drive to I-10</li></ul>	None

Table 19 – 2030 P.M. Peak Hour Level-of-Service Analysis Summary

Alternative	Overall Description	Access Description	Traffic Redistribution (Peak Hour)	2030 P.M. Peak Hour Congestion Areas (LOS 'E' or 'F')				
				I-10 Mainline/Express Lanes	I-10 Local Lanes	US 60	SR 143	I-17
No-Build	No-Build Alternative	<ul style="list-style-type: none"> <li>Same access as existing</li> </ul>	N/A	<ul style="list-style-type: none"> <li>Eastbound from US 60 to I-17</li> </ul>	N/A	None	<ul style="list-style-type: none"> <li>Southbound from I-10 to University Drive</li> <li>Northbound from Sky Harbor Blvd to University Drive</li> </ul>	<ul style="list-style-type: none"> <li>Northbound from 7th Street to 16th Street</li> <li>Southbound from I-10 to 7th Street</li> </ul>
Alternative 1	1988 Express/Local Lanes Concept	<ul style="list-style-type: none"> <li>Buckeye Road, 32nd Street, 40th Street, Broadway Road, Baseline Road (westbound) access to and from Local Lanes</li> <li>24th Street and Baseline Road (eastbound) access from I-10 express lanes</li> <li>Limited access to Buckeye Road, University Drive, and 48th Street</li> <li>Sky Harbor Boulevard connection to I-10 to/from the north</li> <li>No access from I-17 to PSHIA</li> <li>Fully Directional TI at SR 143 with ramp connections to Local Lanes</li> <li>SPUI at University Drive with north side ramps connected to SR 143 and south side ramps connected to the 48th Street Northbound and Southbound Connector Roads</li> </ul>	N/A	<ul style="list-style-type: none"> <li>Eastbound from I-17 to SR 51</li> </ul>	<ul style="list-style-type: none"> <li>Eastbound from US 60 to I-17</li> </ul>	<ul style="list-style-type: none"> <li>Eastbound from Mill Avenue to I-10</li> </ul>	<ul style="list-style-type: none"> <li>Southbound from system TI ramp to Sky Harbor Blvd</li> <li>Northbound from Sky Harbor Blvd to University Drive</li> </ul>	<ul style="list-style-type: none"> <li>Northbound from 7th Street to I-10</li> <li>Southbound from I-10 to 7th Street</li> </ul>
Alternative 2	Express/Local Lanes Concept; Provides more Express, Local and HOV Lanes than Alternative 1	<ul style="list-style-type: none"> <li>See Alternative 1 above</li> </ul>	N/A	<ul style="list-style-type: none"> <li>Eastbound from Elliot Road to Baseline Road</li> </ul>	<ul style="list-style-type: none"> <li>Eastbound from US 60 to I-17</li> </ul>	<ul style="list-style-type: none"> <li>Eastbound from Mill Avenue to I-10</li> </ul>	<ul style="list-style-type: none"> <li>Southbound from system TI ramp to Sky Harbor Boulevard</li> <li>Northbound from University Drive to I-10</li> </ul>	<ul style="list-style-type: none"> <li>Northbound from 7th Street to I-10</li> </ul>
Alternative 3	Express/Local Lanes Concept; Provides more Express, Local and HOV Lanes than Alternative 1, Includes an elevated viaduct for the HOV lanes	<ul style="list-style-type: none"> <li>See Alternative 1 above</li> <li>Includes elevated viaduct for HOV lanes</li> </ul>	N/A	<ul style="list-style-type: none"> <li>See Alternative 2</li> </ul>	<ul style="list-style-type: none"> <li>See Alternative 2</li> </ul>	<ul style="list-style-type: none"> <li>See Alternative 2</li> </ul>	<ul style="list-style-type: none"> <li>See Alternative 2</li> </ul>	<ul style="list-style-type: none"> <li>See Alternative 2</li> </ul>
Alternative 4	Express/Local Lanes Concept; Same as Alternative 2 but shifts 1 local lane to the express lanes	<ul style="list-style-type: none"> <li>See Alternative 1 above</li> </ul>	Redistributes approx. 1,500 vph from the local lanes to the express lanes in peak direction of travel	<ul style="list-style-type: none"> <li>Eastbound from Elliot Road to Baseline Road</li> </ul>	<ul style="list-style-type: none"> <li>Eastbound from US 60 to I-17</li> </ul>	<ul style="list-style-type: none"> <li>Eastbound from Mill Avenue to I-10</li> </ul>	<ul style="list-style-type: none"> <li>Southbound from system TI ramp to Sky Harbor Boulevard</li> <li>Northbound from Sky Harbor Blvd to I-10</li> </ul>	<ul style="list-style-type: none"> <li>Northbound from 7th Street to I-10</li> </ul>
Alternative 5	I-10 Widening Concept; Provides more general-purpose and HOV lanes than the "No-Build" Alternative	<ul style="list-style-type: none"> <li>Local access from the I-10 mainline</li> <li>Limited access to University Drive and 48th Street</li> <li>Fully directional TI at SR 143 with ramp connections to the I-10 mainline</li> <li>Full TI at University Drive with north side ramps connected to SR143 and south side ramps connected to the 48th Street Northbound and Southbound Connector Roads</li> <li>Sky Harbor Boulevard connection to I-10 to/from the north</li> </ul>	N/A	<ul style="list-style-type: none"> <li>Eastbound from US 60 to I-17</li> <li>Westbound from US 60 to Baseline Road</li> </ul>	N/A	None	<ul style="list-style-type: none"> <li>Southbound from University Drive to Sky Harbor Boulevard</li> <li>Northbound from University Drive to I-10</li> </ul>	<ul style="list-style-type: none"> <li>Northbound from 7th Street to I-10</li> <li>Southbound from I-10 to 7th Street</li> </ul>

The existing directional ramp connections between I-10 and Sky Harbor Boulevard (to/from the north) would be removed from service to consolidate the freeway ramp connections into a single point of access into the airport.

The design of Ramp E-N would be modified to incorporate a concrete median barrier between Ramp E-N and the Buckeye Road exit ramp (from Ramp E-N). This revised ramp configuration would eliminate the short weaving area that was identified with Option 2.

The Buckeye Road southbound entrance ramp would connect to the eastbound I-10 local lanes with a parallel entrance design. A new ramp connection between Buckeye Road and westbound I-17 would be constructed immediately west of and adjacent to the eastbound local lanes.

The new ramp connection between Buckeye Road and westbound I-17 would require an additional westbound freeway lane departing the I-10/I-17 TI, which would require the project limits to be extended from 7<sup>th</sup> Street to 7<sup>th</sup> Avenue.

### Operational Analysis Results

Traffic volumes on the I-10 express and local lanes would not be expected to increase or decrease significantly with this option. The results of a level-of-service analysis indicate this option would exhibit similar operational characteristics as Option 1.

A traffic analysis was conducted for the Buckeye Road TI to determine if a SPUI interchange configuration would operate efficiently under the projected traffic conditions. As described above, this alternative would add a new service interchange at Buckeye Road that would replace the existing free-flow ramps into Sky Harbor Airport.

The results of an operational analysis indicates the Buckeye Road interchange would operate with an overall LOS 'D' during the A.M. and P.M. peak periods under the projected 2030 traffic conditions. However, individual movements at the TI would operate at LOS 'E' or 'F'. Additional coordination will be required with Phoenix Aviation Department staff to verify the projected volume of traffic that would be anticipated at this interchange.

#### 2.6.1.4 Option 4: North Directional Ramps with Sky Harbor Boulevard, Half Diamond Interchange with Buckeye Road

### Description

Option 4 was developed to incorporate desirable elements of Options 2 and 3 by retaining the existing directional ramp connections between I-10 and Sky Harbor Boulevard (to/from the north), and a half-diamond interchange at Buckeye Road (I-10 and I-17 access to/from the south).

### Operational Analysis Results

Traffic volumes on the I-10 express and local lanes would not be expected to increase or decrease significantly with this option. The results of a level-of-service analysis indicate this option would exhibit similar operational characteristics as Option 1.

Higher volumes of traffic would be able to access the west airport entrance with this Option when compared with Option 3. This option also would restore all existing freeway access when compared with Options 1 and 2.

#### 2.6.2 24<sup>th</sup> Street Traffic Interchange

##### 2.6.2.1 Option 1: Half Diamond TI with Ramp Connections to the Express Lanes

### Description

This option would retain the existing half-diamond interchange at 24<sup>th</sup> Street with ramp connections with the I-10 express lanes (to/from the east).

### Operational Analysis Results

This result of the level-of-service analysis was discussed with Alternative 2 in Section 2.5 of this document. Tables 18 and 19 (starting on page 83) summarize the locations where congestion (LOS 'E' or 'F') would be anticipated to occur with this option.

##### 2.6.2.2 Option 2: Half Diamond TI with Ramp Connections to the Local Lanes

### Description

This option would retain the existing half-diamond interchange at 24<sup>th</sup> Street with ramp connections to the I-10 local lanes (to/from the east).

### Operational Analysis Results

The reconfiguration of the 24<sup>th</sup> Street ramps would increase the traffic demand on the westbound I-10 local lanes by approximately 300-400 vph in the A.M. peak hour. During the P.M. peak hour, the traffic demand would increase by approximately 300-400 vph on the westbound local lanes and approximately 200-500 vph on the eastbound local lanes. However, the traffic volumes on the I-10 express lanes would not be expected to decrease due to the significant travel demand that is projected for this segment of the I-10 corridor.

An operational analysis was conducted for this option that indicates the level-of-service on the I-10 express and local lanes would be similar to Option 1. However, removing the ramp connections from the express lanes should increase the capacity of the express lanes approaching and departing the I-10/I-17 TI.

### 2.6.2.3 Option 3: Full Diamond TI with Ramp Connections to the Local Lanes

#### Description

This option would reconfigure the 24<sup>th</sup> Street TI into a full diamond interchange with ramp connections to the eastbound and westbound I-10 local lanes in all directions of travel.

#### Operational Analysis Results

The new 24<sup>th</sup> Street west ramps would increase the traffic demand on the local lanes by approximately 400-800 vph in the A.M. and P.M. peak hours. However, the traffic demand on the express lanes would not be expected to decrease due to the significant travel demand that is projected for this segment of the I-10 corridor.

An operational analysis was conducted for this option that indicates the level-of-service on the I-10 express and local lanes would be similar to Option 1. The ramp connections to and from the local lanes would be expected to increase the capacity of the express lanes approaching and departing the I-10/I-17 TI.

### 2.6.3 I-10/SR143 Traffic Interchange

#### 2.6.3.1 Option 1: I-10 Widening Alternative 2

#### Description

The new I-10/SR 143 TI would provide a three level system interchange with directional ramps for the freeway-to-freeway traffic movements with ramp connections to the eastbound and westbound I-10 local lanes. This option is depicted in Appendix D.

The SR 143 mainline would terminate north of I-10 and would no longer provide direct access to 48<sup>th</sup> Street. The SR 143 southbound mainline would bifurcate into the directional ramps that would connect to the eastbound and westbound I-10 local lanes.

Access to SR 143 from 48<sup>th</sup> Street would be provided with separate northbound and southbound connector roads that extend from Broadway Road to University Drive. The south ramps of the University Drive TI would be disconnected from SR 143, and realigned to connect to the 48<sup>th</sup> Street connector roads.

The University Drive TI ramp intersections would be reconfigured into a modified single-point urban interchange (SPUI) configuration to allow the 48<sup>th</sup> Street connector road traffic to pass through the ramp intersections to access SR 143. For example, southbound traffic destined to 48<sup>th</sup> Street (or Broadway Road) would exit the SR 143 at the University Drive TI exit ramp, pass through the ramp intersection, and continue to the south on the southbound 48<sup>th</sup> Street connector road to Broadway Road.

The University Drive TI (SPUI configuration) currently provides full freeway access with SR 143. Traffic can then access I-10 from SR 143 via the existing I-10/SR 143 TI ramps. However, the limited distance between the University Drive TI south ramps and I-10/SR143 TI directional ramps is causing significant traffic congestion on southbound SR 143 due to current vehicle weaving during the peak travel periods. The SR 143 TI Ramp S-E (loop ramp) also contributes to congestion on the southbound roadway.

The roadway geometry required for the new I-10/SR 143 directional ramps would further reduce the weaving length provided on SR 143. Due to this concern University Drive TI south ramps would be disconnected from SR 143.

A full diamond TI would be provided at Broadway Road with ramp connections to the I-10 local lanes. The existing ramp from eastbound I-10 to Broadway Road/48<sup>th</sup> Street would be removed and replaced with a new exit ramp between the eastbound I-10 local lanes and Broadway Road, thus removing direct access from eastbound I-10 to 48<sup>th</sup> Street.

Existing frontage roads are currently located immediately east and west of SR 143. The frontage roads would be relocated to the outside of the proposed freeway improvements to retain the existing access between University Drive and Elwood Street within the City of Phoenix, and between University Drive and 14<sup>th</sup> Street within the City of Tempe.

#### Operational Analysis Results

This option was discussed with the I-10 Widening Alternative 2 in Section 2.5 of this document. Tables 18 and 19 on pages 83 and 84 summarize the locations where congestion (LOS 'E' or 'F') would be anticipated to occur with this alternative.

An operational analysis was conducted for the University Drive TI to determine if a modified SPUI or diamond interchange configuration would operate efficiently with the additional traffic generated from the northbound and southbound connector roads to 48<sup>th</sup> Street. This alternative would add a new phase to the traffic signal at the University Drive TI to allow the 48<sup>th</sup> Street Connector Road traffic to pass through the ramp intersections. The results of the analysis indicate the interchange would operate with an overall LOS 'F' during the A.M. and P.M. peak periods.

#### 2.6.3.2 Option 2: Restore South University Drive TI Ramps Concept 1

#### Description

A revised concept for the SR 143 and University Drive interchanges was developed to restore access between University Drive and I-10, as depicted in Appendix D.

Ramps E-N, W-N and the northbound 48<sup>th</sup> Street Connector Road would be reconfigured and would merge to become the SR 143 mainline just north of I-10. An exit ramp would be provided from northbound SR 143 to University Drive for travelers on Ramp E-N and northbound 48<sup>th</sup> Street. A separate exit ramp would be developed to allow travelers on Ramp W-N to access University Drive from the westbound I-10 local lanes.

The southbound University Drive entrance ramp would be reconnected to the southbound SR 143 mainline to the north of the I-10/SR 143 TI. Three lanes would be provided on SR 143 approaching the system interchange, with the left two lanes continuing on Ramp S-E (I-10 to the east) and one lane continuing onto Ramp S-W (I-10 to the west).

The southbound 48<sup>th</sup> Street Connector Road would continue to the south similar to Option 1. The University Drive west ramp intersection would be reconfigured to a “modified SPUI” design to allow traffic destined to 48<sup>th</sup> Street from southbound SR 143 to exit the freeway at the University Drive exit ramp, pass through the ramp intersection, and then continue to the south on the Southbound 48<sup>th</sup> Street Connector Road.

The existing frontage roads that are located along SR 143 would be relocated similar to Option 1.

### Operational Analysis Results

This option would increase the traffic demand on the westbound I-10 local lanes by 100-200 vph in the A.M. and P.M. peak hours. The traffic demand on the I-10/SR 143 TI Ramp S-E would be expected to increase by 300-400 vph in the A.M. and P.M. peak hours. However, the traffic volumes for the I-10 express lanes would not be expected to decrease due to the significant travel demand that is projected for this segment of the I-10 corridor. An operational analysis was conducted for this option that indicates the level-of-service on the I-10 express and local lanes, and the SR 143 mainline, would be similar to Option 1.

An operational analysis was also conducted for the University Drive TI to determine if a modified SPUI or diamond interchange configuration would operate efficiently with the additional traffic generated from the southbound connector road to 48<sup>th</sup> Street. The results of the operational analysis indicate the interchange would operate with an overall LOS ‘F’ during the A.M. and P.M. peak periods with this configuration.

#### 2.6.3.3 Option 3: Restore South University Drive TI Ramps Concept 2

### Description

This option is similar to Option 2 in the northbound SR 143 direction of travel. In the southbound SR 143 direction of travel, all proposed improvements would be similar to Option 2 except for traffic destined for 48<sup>th</sup> Street from southbound SR 143.

Option 3 would provide a separate exit from the southbound SR 143 mainline to the southbound 48<sup>th</sup> Street Connector Road, which would eliminate the need for this traffic to pass through the University Drive TI west ramp intersection. This option is depicted in Appendix D.

### Operational Analysis Results

This option would reduce the traffic demand on the southbound University Drive exit ramp by approximately 500 vph in the A.M. and P.M. peak hours.

An operational analysis was conducted for this option that indicates the level-of-service on the I-10 express and local lanes, and the SR 143 mainline, would be similar to Option 1. However, with this option, the additional signal phase is not necessary and the University Drive TI is expected to operate much more effectively than Options 1 or 2.

#### 2.6.3.4 Option 4: Restore Ramp From Eastbound Local Lanes to Southbound 48<sup>th</sup> Street

### Description

Option 1 was modified to provide a connection between the eastbound local lanes and southbound 48<sup>th</sup> Street as depicted in Appendix D.

The I-10/SR143 TI Ramp E-N and a combined Broadway Road/48<sup>th</sup> Street exit ramp would be designed as sequential exits from the eastbound local lanes with an “exit-exit” configuration. Once the Broadway Road/48<sup>th</sup> Street exit (2 lanes) has departed the local lanes, the 48<sup>th</sup> Street exit ramp would be designed as a single lane ramp with a tapered exit design.

The new southbound 48<sup>th</sup> Street Connector Road (2 lanes) would be constructed to provide a connection from University Drive to 48<sup>th</sup> Street. The 48<sup>th</sup> Street ramp (from the eastbound local lanes) would enter the southbound 48<sup>th</sup> Street connector road with a “lane-add” design that would develop three lanes approaching the Broadway Road intersection.

### Operational Analysis Results

The new 48<sup>th</sup> Street exit ramp would decrease the peak hour volume on the 40<sup>th</sup> Street eastbound exit ramp by approximately 400-500 vph in the A.M. and P.M. peak hours. Shifting this traffic to the new 48<sup>th</sup> Street ramp would improve the level-of-service at the 40<sup>th</sup> Street TI, the 40<sup>th</sup> Street/Broadway Road intersection, and the Broadway Road/48<sup>th</sup> Street intersection. However, the traffic volumes on the express lanes would not be expected to decrease due to the significant travel demand that is projected for this segment of the I-10 corridor.

An operational analysis was conducted for this option that indicates the level-of-service on the I-10 express and local lanes would be similar to Option 1.

#### 2.6.3.5 Option 5: Westbound Broadway Road to University Drive Connection

### Description

This option was developed to provide a “slip ramp” connection between the westbound Broadway Road entrance ramp and the University Drive TI (access to SR 143). The east ramp intersection at University Drive would be reconfigured to provide a “modified SPUI” configuration that would allow traffic to pass through the ramp intersection and continue to the north to enter the northbound SR 143 mainline.

This option would allow traffic on westbound Broadway Road to access northbound SR 143 without being required to travel through the Broadway Road TI and 48<sup>th</sup> Street signalized intersections. This option would only be feasible with the Options 2 and 3.

### Operational Analysis Results

This option would not impact the operations of the I-10 express and local lanes or the SR 143 mainline. The additional signal phase required at the University Drive TI (to allow the thought movement to SR 143) would likely cause the service interchange to operate with LOS 'F' operational characteristics during the A.M. and P.M. peak periods.

#### 2.6.4 Baseline Road TI Eastbound Exit Ramp

##### 2.6.4.1 Option 1: Ramp Connection to the I-10 Express Lanes

### Description

This option would retain the existing ramp connection from the eastbound I-10 express lanes to Baseline Road, as depicted in Appendix D.

### Operational Analysis Results

This option was discussed above under Section 2.5. The ramp connection with the I-10 express lanes could reduce the level-of-service provided on I-10 approaching the I-10/US 60 TI.

##### 2.6.4.2 Option 2: Ramp Connection to I-10 Local Lanes

### Description

This option would retain the existing interchange at Baseline Road with the ramp connection to the eastbound I-10 local lanes, as depicted in Appendix D.

### Operational Analysis Results

The reconfiguration of the Baseline Road ramp would increase the traffic demand on the eastbound local lanes by approximately 300 vph in the A.M. peak hour, and approximately 500 vph in the P.M. peak hour. However, the traffic volumes on the express lanes would not be expected to decrease due to the significant travel demand that is projected for this segment of the I-10 corridor.

An operational analysis was conducted for this option that indicates the level-of-service on the I-10 express and local lanes would be similar to Option 1. Eliminating the ramp connection from the eastbound express lanes would be expected to increase the level-of-service of I-10 approaching the I-10/US60 TI.

##### 2.6.4.3 Option 3: Ramp Connections to I-10 Express and Local Lanes

### Description

Option 3 would restore the existing ramp connection with the eastbound I-10 express lanes, and provide an additional connection to the eastbound local lanes as shown in Appendix D.

### Operational Analysis Results

An operational analysis was conducted for this option that indicates the level-of-service on the I-10 express and local roadways would be similar to Option 1.

##### 2.6.7 Summary of Level-of-Service Analysis of Local Access Options

The level-of-service analysis results are provided in Appendix D for each of the local access options evaluated for the study. In general, the local access options would not significantly impact the operations of the I-10 express or local lanes for any of the options. The traffic volumes on the express lanes would not be expected to decrease due to the significant travel demand that is projected for this segment of the I-10 corridor. Likewise, the operational characteristics of the local lanes would not change significantly between any of the local access options.